WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX. January 7, 1922 No. 1

Demonstrations on Reclamation Projects.

Newlands.

The major part of the week ending December 31 was devoted to annual report work. Weather conditions have been very favorable for this work. There have been very few interruptions. During the past two weeks there has been 1.4 inches of rainfall. This has been very evenly distributed throughout this time and has made the country roads almost impassable. The stormy weather has interferred very much with the marketing of alfalfa hay. The rains prevented baling and the bad conditions of the roads prevented hauling. The latest prices for alfalfa hay have been $12 per ton, f.o.b. Fallon. There is some anxiety felt among local hay growers because of the extensive rainfall throughout California for the past three weeks. This rainfall is expected to insure ample water for pastures and irrigation next summer, which is taken to mean that Nevada alfalfa will not find a ready sale next year.

There were twenty-two calls for assistance and visits were made to two farms.

Minidoka.

During the forepart of the week ending January 7 a short trip was made to Salt Lake City, Utah, for a short conference with Mr. A. C. Cooley. The purpose of this conference was to discuss the plans outlined for the purchasing of dairy cattle through loans from the War Finance Corporation. At the present time it seems impossible to secure the desired finance through the War Finance Corporation due to the ruling that the corporation will loan money only after the cattle are purchased and the farmers notes and mortgages are filed with the corporation. It is utterly impossible to secure a loan for the original purchase of these cattle so the local live stock association has practically ceased to function.

Uncompahgre.

The corn and potato show held at Olathe on January 5 and 6 required a large part of the time during the week ending January 7, several men have requested assistance in selecting and preparing exhibits. This event, while still not a great affair, is gradually growing in the number of entries and the interest it attracts. This year there were about 140 entries of corn and potatoes, an increase of nearly 40 over last year, and the quality averaged much higher than last year. Olathe merchants patronize the show liberally, providing cash and merchandise for premiums and expenses. No formal discussions were held as specialists could not be secured.

Uncompahgre (continued).

Milk was tested for Mr. Nash who has requested a regular monthly test. Mr. Nash formerly had one of the best dairy herds on the project and kept complete records of production and costs, as a result of which he received an average of $183 per head for all his cows at public sale in September, 1920. He later bought a number of heifers which are just coming into production and plans to put them on test and then sell the grades, replacing them with purebreds.

A sample of cream was tested for one dairyman. Frequent requests for cream tests are received though this kind of work is not solicited or desired. All of these tests have checked very closely with tests on the same cream by the local creamery.

One call was made in the interests of the poultry show to be held at Delta the last of the month. Good interest is being taken in the show.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
AND
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX. January 14, 1922. No. 2

Western Irrigation Agriculture.

San Antonio.

During the two weeks period ending January 14, the following meteorological data were recorded: maximum temperature 78, minimum 24, greatest daily range 40, and precipitation .32 inch. Six days were clear, three were partly cloudy, and five were cloudy. A strong, cold wind from the northwest prevailed on the 10th and 11th, maximum velocities of above forty miles per hour being recorded. Practically all of the .30 inch of precipitation which fell on the 9th was dissipated by this high wind. Canadian field peas on the station, and all small grains of this region, are suffering for moisture. Winter pasture is extremely scarce.

All of field F3 and a small portion of field C3 which was cropped to cotton in 1921 was plowed. Our reversible disk plow has given a great amount of trouble recently and about 8 acres of land which we had hoped to have plowed before now is still unturned.

Station work has consisted of grubbing peach trees from the Mexican seedling orchard on field E4; painting and papering the north half of the farm mess building, including the mess dining room; making a small compost pile from cow manure and Bermuda grass sod which was hauled from the arroyo at the south end of the farm; spreading fine earth to a depth of about one half inch on the Bermuda grass lawn surrounding the farm buildings, and miscellaneous small jobs of repairing and cleaning.

Dr. W. A. Orton, Pathologist in Charge of the Office of Cotton, Truck and Forage Crop Disease Investigations of the Bureau of Plant Industry spent January 11 visiting the station and driving through some of the more important vegetable sections near San Antonio.

Demonstrations on Reclamation Projects.

Minidoka.

Most of the week ending January 14 was spent in getting five more of the leading Jersey breeders interested in the organization of a Jersey Bull Club. At first, only three men were interested. After considerable work, a total of five men have become interested in the purchasing of a very fine Jersey bull from the herd owned by J. W. Dickson and Son, Shed, Oregon. At the close of a very successful meeting held Saturday the five men went down and called on the three bankers here in Rupert for the purpose of borrowing enough for the first payment on this bull, a total of $200.00. They were unable to secure the necessary amount for the purchase of this fine herd sire.

Minidoka (continued).

A meeting has been called for Friday January 20 for the purpose of devising other means of securing the necessary capital for this enterprise.

Shoshone.

During the week ending January 14, three farm visits were made and 39 requests for assistance were received.

Milk testing was done for the owners of several herds and considerable work done on the December milk sheets.

Records held by one of the Powell banks show that thirty-one carloads of hay shipped during November and December, for which a local buyer agreed to pay growers $8 per ton on track at loading points, netted the buyer a little more than $160.00, or a little less than 50 cents per ton. It has now become common knowledge that not less than $4,000 is owing to farmers according to the contracts covering these and other transactions. Itsis a sorry mess and the victims are now struggling each to be first to secure an attachment on whatever property the buyer may have. However, it is doubtful whether there is any property that is not heavily encumbered.

Uncompahgre.

Parts of three days of the week ending January 14 were given to arrangements for a poultry show to be held the last of the month. A premium list has been prepared and will be distributed next week. The Delta County Board of Commissioners have appropriated $100 for the show and Delta Business men have also contributed liberally to its support. A circular letter has been sent out to breeders.

Two more applications for tuberculin tests of dairy herds have been received, making fifteen herds to go under federal and state supervision.

At a meeting of the Riverside Grange milk tests were run on one herd and a milk testing demonstration was given in connection with discussion of feeding and culling dairy cows.

Arrangements were made for a trip to the Eastern Slope to buy some purebred milking Shorthorn cows and a bull. Exhibits at the National Western Stock Show will be inspected.

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WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. IX. January 21, 1922 No. 3

Western Irrigation Agriculture

Newlands.

The cold weather during the period December 13, 1921 to January 21, 1922 prevented the continuance of considerable outside work but, in some cases, it aided more, such as necessary repairs to frozen water pipes. Several inside jobs, including preparing the greenhouse for spring planting, cleaning and oiling the harnesses, building irrigation boxes, overhauling farm machinery, etc. were finished.

Before the feeding of the ensilage was commenced on January 1, it was necessary to build stanchions on the dairy barn. Such cold weather has occurred lately that this feed has become frozen and it will be necessary to cover the top with a mat in hopes that the heat produced from the fermentation will keep it sufficiently thawed to allow its further feeding at this time.

Manuring of the pasture at the rate of 13 tons per acre was completed. Most of the manure was hauled from a nearby farm.

Since Mr. Headley's return from Washington, two weeks ago, some more analyical work has been done with the Lahaontan alum ore. A trip was made to the claim and some samples from various places were taken. These are now being treated with varying amounts of sulphuric acid to determine the increase in percentage of aluminum sulphate in the ore. It is thought that this low grade of ore can be economically treated in this manner and so increase the amount of the aluminum sulphate that it would make it feasible to use the resulting product on the non-productive alkaline soils of the project

The low temperature of -11 degrees reached on the morning of January 19 was the lowest recorded at this station since January 1917. It was 11.2 degrees below the average absolute minimum for a period of 16 years.

Demonstrations on Reclamation Projects.

Minidoka.

The greater part of the week ending January 14 was spent with county agent Barber at Burley working out a cooperative program of work for that county. It is planned to start several farmers on a five-year crop rotation system. This rotation will include dairy cows, poultry, and the brood sow and her offspring. Several representative farms will be used as examples for other farmers to use for their models.

Considerable time was spent with six farmers who are anxious to purchase a fine Jersey bull from Oregon. These six men have formed a Jersey Bull Club but so far they have not been able to raise the necessary capital for

Minidoka (continued).

the purchase of the bull. The banks have refused to loan one cent for the purchasing of the bull. It may become necessary to wait for several months until these men raise the necessary finance before the bull can be purchased.

Newlands.

Considerable time was devoted during the week ending January 7 to completing the annual report. This section of the country has had very much rain for the past two weeks which has interferred considerably with the work. The roads have been practically impassable in many sections of the project. This situation, however, has made it possible to devote more time to report work and reading agricultural publications. Some time was devoted to the selection of a foundation herd of high grade Holstein first calf heifers. These animals were purchased for $90 per head and were two and one-half to three years of age.

During the past week there were received 35 calls for assistance and herd testing work was performed for three herds.

On Monday of the week ending January 14, a trip was made to Reno, Nevada to attend a meeting of farmers and county agents interested in the marketing of alfalfa hay from the different valleys of the state. The present manager of the California Alfalfa Growers' Association attended the meeting. This party presented a plan to the Nevada hay growers who have not yet sold their hay, and to the Nevada State Marketing Association, whereby all the unsold hay in the western part of the state would be pooled and given into the hands of the California Growers' Association for selling. It was the plan at that time that the California Association should ship this hay through the Panama Canal to the Atlantic coast. They agreed to contract for this hay at a minimum price of $9 per ton on cars at Nevada points. The hay growers were not enthusiastic over this price as they had been offered as high as $12 per ton two weeks before this and prior to the heavy rains in California. Following this meeting the various representatives left for their respective homes to present the matter in their localities. Since the heavy rains in California the alfalfa market has become very slow, and the local buyers are offering only $9 per ton, f.o.b. cars at Fallon. The present freight rate to San Francisco and adjacent points is now $4.90 per ton as compared with $5.65, the rate before the reduction.

During the past week the weather has been quite cold. The roads which were muddy are now frozen and traveling with automobile is very bad.

One article was contributed to the local paper on dairy development on the Newlands project in 1921. Herd record work was performed for four herds. Services were rendered in answer to 33 calls for assistance during the week.

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WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
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DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX | January 28, 1922 | No. 4

Demonstrations on Reclamation Projects.

Newlands.

The Newlands project was visited by very low temperatures throughout the week ending January 21, the minimum being 11 degrees below zero. These unusual temperatures have caused much inconvenience to stock owners who have not provided accomodations for such weather conditions. A material reduction in milk flow has been the principal loss with the dairyman. The wet weather which preceded the low temperatures was responsible for much of the loss in milk flow. The feeding of damp alfalfa always results in loss of milk flow and very often digestive troubles in cattle. The cold weather has stimulated the demand for alfalfa hay for shipping and although the demand is good the price has not returned to where it was prior to the rainy season during Christmas time, $9 to $9.50 being the price offered locally.

Much of the time during the last week was devoted to answering inquiries relative to general dairy herd management and to herd testing work. In this connection there were received 35 calls for assistance, most of which were made in person at the office.

One farm meeting was attended with an attendance of 40. At this meeting a delegate for the National Farm Conference at Washington was selected.

Articles were contributed to each of the local papers during the week. One article relative to swine production on the project was contributed. This article was contributed to set forth the need of increased swine production on the project. The second article dealt with the operation of the local creamery for the first seven months of its operation under present management. Occasion was taken in this article to urge support of our local creamery, especial emphasis being made on the necessity of delivering a high class product in order to build up a ready market for our local butter.

Shoshone.

During the week ending January 21, three farm visits were made and 28 requests for assistance were received.

Several live stock and poultry owners were given assistance in figuring rations and determining the cost of rations, milk samples from four herds were tested, some work was done towards a shipment of beef cattle, and the milk sheets for December occupied considerable time.

The high school team which contested at the Denver stock show won second place, one member of the team securing the best rating of any individual in the contest.

The coldest weather of the year prevailed during the larger part of the week, the mercury reaching -23 degrees Thursday morning.

Uncompahgre.

The entire week ending January 21 was spent at Denver and enroute to and from that place. One stock farm was visited enroute and several breeders were visited at the National Western Livestock Show. A Mr. Herman from the project had requested assistance in selecting some milking Shorthorn cattle during the show. Breeders visited the first of the week, apparently expecting a heavy demand for their stock, held their prices very high, but this demand failed to develop and prices by the end of the week were pretty reasonable. The beef Shorthorn sale on Wednesday was probably responsible for part of the reduction in prices asked for the milking Shorthorns. At this sale everything sold slowly and at very low prices, quality considered. It took very good bulls to bring $100 a head.

Mr. Herman bought seven head of registered milking Shorthorn stock, four bred cows and heifers, one open heifer and two bulls, seven months and two years of age, respectively. The first price on the seven head was $1700 and the price paid was $1150. These are the first milking Shorthorns brought into the valley and will attract a great deal of attention as there has been considerable interest in the breed. They are good individuals, and are backed by good milk records.

The Denver show was stronger this year in most respects than last in spite of unfavorable financial conditions. Showing of beef cattle, hogs and Holstein cattle were especially strong. The Hereford sale was much better patronized than the Shorthorn sale, the top price paid for a yearling bull being $3,000. This was one of the bulls shown at the Montrose fair in September.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
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Vol. XX, February 4, 1922. No. 5

Demonstrations on Reclamation Projects.

Newlands.

During the week ending January 28 there has been a continuation of rather severe winter weather for this section. Farming activities are confined to doing routine chores and the hauling of alfalfa hay for shipment into California. Demand is very good for the present. The latest prices are $9 to $9.50 per ton f.o.b. cars. This nets the farmer about $5 to $6 in the stack. There has been some very interesting data assembled relative to the production cost of alfalfa hay last year. These figures are serving to demonstrate that there is a big net loss to the alfalfa grower when he is not able to realize more than $6 per ton in the stack for his hay. Indications from the figures so far compiled are that about $10 per ton in the stack will be nearer the cost of production, and this figure will not permit counting any labor income for the farmer. When a good volume of data is secured in this connection, it whould serve to show the project farmers that they must realize more from their alfalfa hay than it is possible to get by shipping it out of the project. This should eventually serve to stimulate live stock production, and with live stock production there will eventually be substituted large acreage of grain crops to supplement the alfalfa.

During the week there were several calls for assistance along the line of general herd management. Forty seven calls for assistance were received. Visits were made to two farms. Two farmers meetings were attended. These meetings were largely concerned with irrigation matters. One article was contributed to the local paper about a project homesteader who has been able with a herd of 13 Jersey cows to maintain himself and family, pay all expenses incident to reclaiming the homestead, as well as purchase all feed for the cattle.

Uncompahgre.

The last half of the week ending January 28 was spent at Delta assisting with the first annual Montrose-Delta poultry show, and the first half was devoted mostly to preparing for the show. Milk tests were run for three men and two other farm visits were made.

The poultry show was considered quite successful from the standpoints of number and quality of exhibits, number of exhibitors, and attendance of visitors. There were 47 exhibitors and just an even 400 fowls of all kinds on exhibition, nearly all being chickens. Over 600 visitors attended. Rhode Island Reds, Plymouth Rocks, White Wyandottes, and White Leghorns were the varieties best represented. Entries were made for both standard and utility. Judging was by comparison. A great deal of interest was

Uncompahgre (continued).

shown in the utility classes which was something of an innovation. They were judged by a Delta man while the standard classes were judged by a licensed A. P. A. judge from Colorado Springs.

It was planned to have a program in connection with the show but a suitable room was not available so only a business meeting was held. It was voted to hold the show at Montrose next year. Officers and directors were elected. The secretaryship was left in this office.

Shoshone.

The first four days of the week ending January 28 were spent at Billings, Montana, attending a dairy school and dairy conference. Sixty-five dairymen were present a part or all of the time. Instruction in feeds and feeding was given by Oscar Tretsvan from the Montana Agricultural College, the dairymen who were present all of the time learning the feed requirements of cows, how to balance rations and how to calculate the cost of rations.

The remainder of the week was given chiefly to miscellaneous work that had accumulated during absence. Two Farm Bureau meetings were attended, one at Powell and one at Garland. The county bureau had planned a county wide membership drive to begin February 1. A carload of steers were shipped to Omaha cooperatively on Friday.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX | February 11, 1922. | No. 6

Western Irrigation Agriculture.

Yuma.

The maximum temperature for the week ending February 4 was 63, minimum 24, greatest daily range 36, and precipitation .25 inch. Frosts occurred on five nights of the week. The maximum temperature, however, is getting higher each day. Crops in general are just beginning to make a growth following the hard freeze on January 21.

The damage caused in many cases to alfalfa stocks and also the frosting of the hay in the fields has sharpened the demand for hay. Present prices are around $17.50 per ton baled, on board cars at Yuma.

The cotton ginning on the project is just about completed. Short staple is selling around 12 cents, or about five cents under Eastern spot prices.

Present crop conditions and prospects on the project seem less encouraging to the unit holders than they did a year ago. It is reported that a number of units, especially on the more sandy soils in the Bard section, will not be cropped this coming season. The reasons for this situation are due in part to water and construction payments which are over-due, varying in amounts from $500 to $1000, and also to the proposed water rate for 1922. The rate proposed for the project proper is to be a minimum charge of $4.50 per acre for two acre-feet and $1.00 for each acre foot in excess. A certain portion classified as sandy soil to receive three and one-half acre feet instead of two acre feet at the above rate and $1.00 for each acre foot over the minimum.

Station work performed during the week consisted of plowing the deciduous orchard B23 to 33; harvesting alfalfa, A1 to 8; hauling manure on nursery plats; picking cotton, A23; pruning trees and shrubs; digging nursery stock; sawing wood and irrigating.

Demonstrations on Reclamation Projects.

Minidoka.

A two-day farmers institute was held at Rupert January 30 and 31 under the direction of the University of Idaho Extension Division. The meetings were exceptionally good and very well attended, the total persons present for the two days being 720. Similar schools were held in Cassia County two days.

Two days were spent with Prof. R. T. Parkhurst of the University of Idaho, assisting him with poultry work in the county. Mating pens were selected in various communities.

Newlands.

During the week ending February 4 the project has had a continuation of winter weather. The end of the week, however, showed a big change. It is hoped that milder weather will set in soon and the farmers will be permitted to do their field work. Much of the week was spent in the office. The new office arrangement is proving to be very satisfactory. The Commercial Club, The Farm Bureau, and this office being in one big room make the place headquarters for considerable activity. This arrangement serves to place this office in a position to serve the farming public in a much better way than it has ever been able to do before with all the office work being done at the Experiment Farm a mile out of town or on the streets. Indications are that there will be two or three times the number of calls for assistance under the new arrangements as there were under the old. During the week there were 58 calls for assistance and visits were made to six farms.

One registered bull was selected and herd tests were run for three dairy herds. An article was contributed to the local paper on rabies. There has been a recent outbreak of rabies in this locality and an article covering the subject in a way that will help the rancher to better protect himself was written.

One farm meeting was attended and the subject of herd testing discussed and the proposition of a herd testing association presented to the people.

Shoshone.

During the week ending February 4, 2 farm visits were made and 29 requests for assistance received.

Office conferences pertaining to feeding questions used most of the time during the week. A wall blackboard was installed, upon which a statement of the digestible nutrients contained in available feeds was placed, together with feed requirements of cows. This plan is being found more effective than any before used.

The presence of roup was discovered on three farms. In each case the outbreak was preceded or accompanied by faulty sanitation. During the cold weather the owners regarded the maintenance of a warm temperature in poultry houses as more important than ventilation, and this was probably a predisposing cause in each outbreak.

An article for the Powell Tribune on "Milking Sheep Vs. Milking Cows" was completed. A farmer living near Powell had previously submitted a comparative statement of production, labor costs and feed costs in support of the rather amazing conclusion that milking sheep on the Shoshone Project would return $42.25 per ton for hay consumed as against a return of $2.38 per ton for cows.

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WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX February 18, 1922 No. 7

Western Irrigation Agriculture.

San Antonio.

The weather during the four-week period ending February 11 has been extremely variable; January 18, with a cloudy sky, the temperature reached 80 degrees--two days later it dropped to 27. The night of February 6, a minimum of 25 degrees was recorded and on February 10 a maximum of 87 was reached. Cloudy and threatening weather prevailed the latter part of January, the sun not having been visible at San Antonio the last fourteen days of the month. A summary of the metereological records made at the experiment farm during the period follows: maximum temperature 87, minimum 25, greatest daily range 41, precipitation .57 inch; clear days 8; cloudy days 15, and partly cloudy 5. The heaviest precipitation in twenty-four hours was .34 inch which occurred on January 28. The cloudy weather, together with the few small showers received, has temporarily relieved the grass and small grain crops but there is no surplus moisture now in the soil.

The work of grubbing out the Mexican seedling peach orchard, field E4, was completed and all the resulting firewood has been hauled, sawed, and stacked in the woodlot.

Rotation plats B6-13 and 14 were plowed and plats B6-15 and 16 were plowed and subsoiled. General field plowing was done as follows: two acres of field C3 previously in cotton and pomegranate plantings; three and one-half acres on south end of field C4 and north end of C5 previously in sorghum varieties; and approximately three acres of fields D3 and D4 which were previously in Johnson grass pasture.

A section of orchard B3, on which all previous plantings have been removed, was given a heavy application of barnyard manure, plowed and subsoiled, and reset with grape varieties.

Flax varieties were reseeded on field C3 February 1, the original planting having been badly damaged by a heavy rain which occurred shortly after seeding was done November 28.

The following tree plantings have been made in orchards A1 and B3: 6 apricots, 6 cherries, 14 figs, 38 peaches, 8 pears, 22 plums, and 2 pecans. Berries were planted at the east side of orchard A1 as follows: 50 dewberries, 50 raspberries, and 150 strawberries. A planting of 34 grape vines, representing 21 varieties, was made in orchard B3.

Demonstrations on Reclamation Projects.

Newlands.

During the week ending February 11 the Newlands project was visited by very bad weather. While the temperatures have not been as low as some minimum temperatures this winter, the weather has been very uncertain. The

Newlands (continued).

lowest temperature during the week was 1 degree below zero, the maximum temperature being 55 degrees. There was 1.03 inches of precipitation during the week including two big snow storms. The roads of the project are almost impassable. With the exception of three visits made to farms, the week was spent in the office, a considerable amount of business being accomplished. There were 55 calls for assistance received about general herd management, cattle selection and herd record work, etc. Four herd tests were made. One article was contributed to the State Farm Bureau paper setting forth the results of a local dairy herd which has been the sole means of support for the homesteader during the development of the homestead.

Minidoka.

The week ending February 11 was spent on the Yakima, Washington Project helping with what was to have been a project-wide crop rotation campaign. The purpose of this campaign was to show the farmers the necessity of following a definite crop rotation and the place that live stock and cultivated crops have in this system. It was the intention of the County Farm Bureau to cooperate with the Utah Idaho Sugar Company in securing a sufficient acreage of sugar beets that at least two of the three large sugar beet factories could operate at capacity this year. Up to the present time from one to two of these factories have been idle from the lack of a sufficient amount of beets to keep them running. Accurate cost figures were to have been kept on the cost of growing sugar beets on the Yakima Project. For some reason the original plans did not materialize so at a meeting held in Yakima February 11 it was decided that the County Farm Bureau would cooperate with the Utah-Idaho Sugar Company in putting in an extensive vigorous acreage campaign.

Because of the failure to have the original campaign in such a shape that it could be carried out as planned it was deemed advisable that I return to my work on the Minidoka Project.

Shoshone.

Milk samples were tested for two owners and work was done on milk sheets. Several men received assistance in reference to feeding problems and breeding problems. One day was spent in conference with Mr. Allen, County Agent, relative to cooperation in live stock work during 1922. On Saturday there was attended a meeting of the Executive Committee of the Park County Farm Bureau at Cody, the day being given chiefly to discussion of a county-wide marketing plan.

Alfalfa hay has been moving rapidly during the past two weeks, most of it going to Kansas City. During this time prices have been better than previously. The average butter-fat price during January is 27.2 cents per pound. Several registered Jersey cows changed hands, prices ranging from $130 to$151.

Two farm visits were made and 19 requests for assistance were received.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX. February 25. 1922. No. 8

Western Irrigation Agriculture.

Yuma.

The maximum temperature for the week ending February 18 was 82, minimum 38, greatest daily range 43, and precipitation 0. The recent warm weather has had a very stimulating effect on all growing crops. Alfalfa and winter grains are now coming on nicely.

Farming prospects, as a whole, seem to appear a little brighter. There is a proposed ruling through the Reclamation Service that land owners who are in arrears in water payments may not only get water this coming season but will also be given until 1924 to make their water and construction payments.

Much land on the project is now being plowed. It is difficult at present to estimate the 1922 cotton acreage as the present depressed price will have a marked influence upon many growers as the time for planting arrives. In some few cases land has already been irrigated and planting will begin in about ten days.

Mr. J. E. Mundell, formerly with the office of Dry Land Agriculture, in charge of the station at Big Springs, Texas, arrived in Yuma during the week to take up his duties as County Agent. Five thousand three hundred and fifty cuttings of the following trees and vines were distributed to unit holders on the project:

GRAPES		POMEGRANATES		MULBERRY	
Thompson Seedless	-934	Wonderful	- 260	Black	- 189
Malagas	-131	Sweet Fruited	- 108	White	- 130
Persian varieties	-176	Sacaton	- 51		
Chavooshee	- 32	Flowering	- 200	POPULAR (Carolina)	
Golden Chasselas	- 47	No. 32	- 15	Carolina	- 51
Valde Penas	- 8	No. 71	- 10	SYCAMORE	- 37
Lady Fingers	- 11	No. 51	- 66		
Malvoise	- 6			ROSES	
TAMARISK		OLEANDER		Bush var.	- 579
Evergreen	-1334	Pink	- 57	Climbing var.	- 118
		White	- 53		
FIGS		FIGS		FIGS	
Brown Turkey	- 231	Black San Pedro	-230	Brunswick	- 47
Green Ischia	- 72	Celestial	- 95	No. 6481	- 48
No. 2852	- 10	No. 6952	- 4	St.John's	- 10

Demonstrations on Reclamation Projects.

Shoshone.

Warmer weather prevailed during most of the week causing the snow to almost disappear and bad roads to appear, consequently most of the time was spent in the office working on records, correspondence, projects for 1922 and attending to requests for information from callers.

Nineteen requests for assistance were received and 3 farm visits were made. Two Water Users' meetings, one at Powell and one at Deaver, were attended, at both of which resolutions favoring government relief of a rather radical nature were passed. On Saturday a trip was made to Deaver to confer with the Agent of Big Horn County about working cooperatively in that part of the project included in the Big Horn county.

Minidoka.

The greater part of the week ending February 18 was spent in clearing up back correspondence and attending to emergency calls that had come in to the office while I was visiting the Yamika Project.

Saturday a meeting was called for the purpose of again trying to secure the necessary finance for the purchase of the Jersey bull for the men who have been anxious to organize a Jersey bull club with a yearling bull from J. M. Dickson & Son, Shed, Oregon. This is a very fine bull and the men interested feel that the price is right but up to the present time it has been impossible to borrow any money from the banks of Rupert. The five men interested are some of the best farmers near Rupert, men who will in time be able to purchase this bull without any help from the banks but at this time they are in hard financial straits.

Newlands.

During the week ending February 18 much of the time was devoted to consultations with the farmers at the office on a variety of subjects. There was a total of 55 calls for assistance. There is considerable inquiry about the purchase of dairy cattle within the project and consultations about plans for the summer. Much interest is being shown in growing supplementary crops for dairy cattle feeding and for swine production. There were six herd tests run for dairymen during the week.

Special emphasis is being placed upon the replacing of grade bulls with pure bred sires at this time. Two articles were prepared for the local papers on this subject. One of them is an illustrated article occupying one-half page which will appear February 25.

On Friday of the week a farm meeting was attended and participated in. On this occasion a new community center hall in the Soda Lake District was dedicated. There was an attendance of 100, practically all of whom were new homesteaders and their families. The community hall was built by donated labor and subscriptions in the district.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX. March 4, 1922. No. 9

Western Irrigation Agriculture.

Newlands.

The cold weather that continued until the middle of February prevented any plowing or other outside work of a like nature. Likewise, the frozen water pipes made it impossible to do any laboratory work. Such work as overhauling the farm machinery, cutting brush and inside jobs were done during the fore part of February. As soon as the warmer weather commenced the work on the ditches was continued and some plowing done on Field Y. Up to date the plats Y3, 4, and 6 have been plowed and re-leveled in preparation for treatments with alum.

The first of February preparations were under way to mine and haul to the station about 100 tons of alum ore. A camp was established at the site of the mine and two men are employed there mining and sacking the ore. Another man spends part time at the claim and part at the farm spreading the alum. He also does teaming work at the station due to the illness of our former teamster. Still a fourth man was hired to haul the ore. The Reclamation Service has loaned a heavy ore wagon and ten mules for the work. With this work and eight of the mules it has been found possible up to the present time to get through only with about 3 tons to the trip due to the bad condition of the roads. A round trip takes two days to make being a distance of about 36 miles. As the warmer weather has greatly improved the condition of the roads, arrangements have been made for the use of a trail-wagon. This will enable the teamster to haul two tons more to the trip with the same number of mules.

Up to this time there has been some 20 tons hauled. This material is screened, then the larger stuff broken up small enough to not interfere with the use of a manure spreader in spreading it. So far Y3 has received its application of alum ore at the rate of 20 tons to the acre. As this ore averages 21 percent crystallized aluminum sulfate this would make 4.2 tons of pure crystallized aluminum sulfate to the acre. Y4 is

receiving the same amount of alum, but with a different treatment. Y3 will be plowed under, but Y4 will not be plowed under.

As fast as the ore arrives at the station it is screened and further application will be made on Y1 and Y2. These two plats will receive double the amount of alum as was applied to Y3 and Y4; or 40 tons to the acre. It is also planned at this time to treat other hard spots on the farm with this alum ore. These plans will depend entirely on the available funds.

Three of the men employed at the station fell victims to the "flu" epidemic which was prevalent in Fallon during the last month. The teamster developed pneumonia and it was necessary to remove him to a local hospital for a couple of weeks. At present all the men are back at work excepting the teamster. It will be some time ere his condition will allow him to commence work again.

The first garden seeds were planted on February 28 in the greenhouse. Two varieties each of egg-plant and peppers were planted. Several of the nights since then have been cold enough to make it necessary to fire the furnace to prevent the soil from freezing and killing the sprouting seeds.

Minidoka.

The greater part of the week ending February 25 was spent in Cassia County assisting County Agent Barber and the Farm Bureau in working out the program of work for the communities on the Minidoka project. At these meetings it was possible to work out a definite livestock and crop rotation system for the project farmers. Practically all the time was taken up in the discussion of crop rotation and diversified farming on this project.

Shoshone.

During the week ending February 25, three farm visits were made and 31 requests for assistance were received.

Information relative to the hay market was given by letter or telephone to a number of growers who had not yet disposed of their hay. Two days were largely given assisting Farm Bureau members at Penrose and Garland in an attempt to get together a car load of stock hogs for a feeder at Basin, Wyoming. Due to a scarcity of hogs, it is being found difficult to fill the order at $7.00 per cwt. at loading point.

There was a meeting of the Directors of the old Powell cooperative creamery Saturday. It is estimated there will be about $35.00 per share of stock to distribute as soon as the last payment of about $500. is made by the purchaser, the Yellowstone, and it is planned to distribute the cash as soon as possible.

During the past six weeks unexpected progress has been made in disposing of surplus hay, so that now it is no longer a serious problem. A mistake in figuring the freight rate which went into effect soon after the first of January, 1922, worked to the advantage of the growers, and there was a general effort to get hay billed out before the correction should become effective on February 20. Since this date, the cost of freight to Kansas City is over a dollar a ton higher than it was before. The price received for shipments made since the first of the year has been much better than it was for shipments made before that time, many carloads billed out during February netting growers as much as $10. per ton.

Uncompahgre.

Milk samples were made for six men during the week ending February 25, three of these having their herds on regular test. Whenever tests are made, men are requested to keep samples of skim milk from their separators for test. One old machine was found which was wasting so much butterfat that it was immediately discarded and replaced by a new one.

As a result of culling work started last year, a great many more people are selecting their best hens for breeding than heretofore. Breeding pens of hens were selected for one man.

A one-day feeding school was held in a country school district with Mr. King on Monday. This was not very well attended, only 20 being present, but everyone seemed interested in the work taken up. General principles of feeding were discussed, and the calculation of rations from local feeds was taken up. Another meeting was attended Friday night at which lantern slides were shown. This was in an outlying district, 30 miles from Montrose, and interest was unusually good. Mr. Kidder, Extension Agronomist, also attended this meeting and outlined the work of his office.

A trip was made with Mr. King and a local farmer to the farm of a breeder of Hereford cattle to find calves for club work. Yearling heifers, purebred but not eligible to registry, were priced at $50 per head, which seemed rather high. It is hoped that a number of registered calves can be placed with club members this year, although it will be difficult to finance such work.

A trip was made to Grand Junction where a conference was held with the County Agent and Secretary of the local Jersey cattle club. This club is furnishing purebred bulls without charge to anyone who will agree to use them and keep production records of the cows bred to such bulls and the heifers sired by the bulls. The offer is extended to Montrose and Delta counties as well as to Mesa County and an effort will be made to place some of the bulls here.

MISCELLANEOUS

Analyses of Colorado River Water.

The Colorado River is one of the most important irrigation streams in the Country and consequently the quantity and character of the salts it contains are worth special consideration.

The waters of this river were sampled daily for a little over a year, beginning with January 10, 1900, under the direction of Mr. R. H. Forbes, Director of the Arizona Experiment Station. These daily samples were made up into composites representing seven different periods for the year, these periods being based on discharge conditions. The analyses of the composites were published in Bulletin 44 of the Arizona Experiment Station and the results are presented herewith in Table I. The significant features of this table may be summarized by saying that the mean salt content for the year was 703 parts per million and the lime-soda ratio averaged 38 : 62.

TABLE I.
Colorado River - 1900
Seasonal Composites of Daily Samples
(Forbes, Bull. 44, Arizona Experiment Station.)
Stated in parts per million

1900 Date	Total Salts	Ca	Mg	K	Na	Total Bases	CO_3	Cl	SO_4	SiO_3	Total Acids	Sum, acids and bases	Ratio-acids to bases
Jan. 10 Mar. 26	929	75	31	11	190	307	73	205	261	46	585	892	1.9:1
Mar. 27 Apr. 30	674	49	20	21	153	243	84	139	194	21	438	681	1.8:1
May 1 June 29	322	42	11	10	55	118	72	45	72	21	210	338	1.8:1
June 30 Aug. 26	361	46	12	13	76	151	77	69	76	33	255	406	1.7:1
Aug. 27 Oct. 1	714	77	22	18	146	263	99	158	197	23	477	740	1.8:1
Oct. 2 Nov. 19	1045	124	28	21	182	355	122	174	356	22	674	1029	1.9:1
Nov. 20 Jan. 24	871	92	28	12	159	291	107	181	238	21	547	838	1.9:1
Mean	703	72	22	15	137	247	91	139	199	27	455		1.8:1

Lime-soda ratio 38 : 62.

Another series of samples of Colorado River water was collected at the Experiment Farm at Bard, California, in 1913. These samples were analyzed in the Bureau of Chemistry by Mr. J. F. Breazeale and the results published in the Weekly Bulletin of this Office, Volume 5, page 61. The results of these analyses, computed insofar as may be into the same constituents as those shown in Table I, are given in Table II. In this series of samples the mean of the total salts is 466 parts per million and the lime-soda ratio is 55 : 45.

Table II.
Colorado River Water, Bard, California, 1913.
From analyses by Breazeale, Weekly Bull. Vol. 5, p. 61.
(Stated in parts per million)

1913 Date	Total Salts	Ca	Mg	K	Na	Total Bases	CO_3	HCO_3	Cl	SO_4	Total Acids	Ratio of acids to bases
May 8...	244	51	17	7	49	124	T	252	42	40	334	2.7 : 1
June 18.	206	39	13	4	33	89	16	84	28	59	171	1.9 : 1
July 17.	301	68	17	7	20	112	5	138	42	101	281	2.5 : 1
Aug. 26.	508	81	21	9	75	186	T	180	98	200	478	2.6 : 1
Sept. 17	878	137	34	9	131	311	00	240	105	433	778	2.5 : 1
Oct. 28.	660	98	31	5	122	256	00	252	98	266	616	2.4 : 1
Mean	466	79	22	7	72	180	3	191	69	183	443	2.43 : 1

Lime-soda ratio 55 : 45.

Another set of samples has been collected at the Bard Experiment Farm which represent the irrigation water as used on the Experiment Farm during the years 1916 to 1919, inclusive. This set of samples has recently been analyzed in the laboratory of this Office. The method of analysis used is different from the official methods used in the earlier analyses and may be described briefly as follows:

1. Total salts determined by the electrolytic bridge.
2. The alkalinity (p^H) was determined by the use of comparison tubes with a standard set of indicators.

[illegible]

[illegible]

[illegible]

3. The carbonates (CO_3) were determined by titration with tenth normal sulphuric acid, using phenolphthalein as an indicator.
4. The bi-carbonates (HCO_3) were determined by titration with tenth normal sulphuric acid, using methyl orange as an indicator.
5. The chlorine was determined by titration with tenth normal silver nitrate, using potassium chromate as an indicator.
6. The sulfates (SO_4) were determined by turbidity readings after treating the water with 10% solution of barium chloride.
7. The soap requirement was determined by using a standard soap solution equivalent in strength to a one-sixtieth normal solution of calcium carbonate.
8. From the determination of soap requirement the lime index was determined by computing the total of lime and magnesium salts and dividing this result by the total salt content as determined by the bridge. In converting the soap requirement reading into equivalent lime and magnesium salts the factor .002 was used.

It will be seen that samples 3a, 3b, 3c, and 16 and 17, are noted as containing silicates. This notation was made because in making the titration for carbonates more acid was required to neutralize the phenolphthalein color than was required to change the color of methyl orange used subsequently in the same solutions.

It will be observed that the lime index as quoted for the samples taken during 1916 and the early part of 1917 is in general much lower than for the later samples. It is possible that this difference may be accounted for by the fact that these samples had been standing a long time in the bottles in the presence of some silt.

In this series of samples the mean of the total salts is 847.12 parts per million.

TABLE III

Water Samples, Colorado River, Bard Experiment Farm, 1916-1919.

Date	Sample Number	Total Salts Br. ppm.	pH cold ppm.	CO_3 ppm.	HCO_3 ppm.	Cl ppm.	SO_4 ppm.	Total acids ppm.	Soap requirement per 100 cc.	Lime Index Factor .002	
1916											
Feb. 29	1	910	8.7	tr	122	142	400	664	2.4	5.0	
	2a	614	9.7+	120	24	42	140	326	.4	1.3	
May 2	2b	614	9.6	72	73	56	140	341	.6	2.0	
	3a	395	9.7+	168	--	42	112	322	.8	4.6	Silicates
	3b	345	9.7	192	--	42	110	344	.4	2.3	Silicates
July 6	3c	460	9.7+	120	--	55	76	251	.2	.9	Silicates
Aug. 14	4	700	8.6	tr	244	70	125	439	7.8	22.0	
Sept. 18	5	700	8.8	tr	195	70	155	410	6.6	19.0	
	6a	1240	7.5	00	292	112	350	754	29.0	46.0	
Oct. 24	6b	1190	7.8	00	463	129	365	957	26.8	45.0	
	7a	750	8.6	tr	122	84	325	531	5.2	14.0	
Nov. 21	7b	750	8.5	tr	122	98	280	500	4.0	11.0	
1917											
	8a	1140	9.5	24	220	266	200	710	9.0	16.0	
Jan. 9	8b	950	8.4	tr	122	166	240	528	5.0	10.0	
	9a	1080	7.9	tr	178	154	185	517	7.0	13.0	
Feb. 26	9b	1040	8.4	tr	164	154	185	503	17.0	33.0	
	10a	1030	8.0	00	178	120	255	533	5.6	11.0	
March 19	10b	1030	8.0	tr	146	154	285	585	4.8	9.0	
	11a	990	7.9	00	219	98	200	517	3.2	6.5	
April 6	11b	970	8.1	00	244	102	220	566	7.0	14.5	
May 15	12	530	8.4	tr	190	70	125	385	3.0	11.3	
October 29	13	960	9.2	tr	49	168	290	507	5.0	10.4	
Dec. 10	14	1000	8.9	tr	73	154	285	512	7.0	14.0	
1918											
May 6	15	590	9.2	24	12	98	140	274	3.0	12.2	
June 3	16	410	9.7	72	--	56	52	180	3.0	14.6	Silicates
July 1	17	500	9.7+	144	--	42	87	273	4.0	16.0	Silicates
July 3	18	670	8.1	tr	195	70	200	465	9.0	27.0	
Sept. 2	19	870	8.2	tr	195	112	240	547	14.0	32.0	
Sept. 30	20	1520	7.9	tr	195	182	375	752	37.0	48.7	
Nov. 22	21	910	8.4	tr	146	182	305	633	18.0	39.6	
Dec 3	22	1040	8.4	tr	73	154	350	577	20.0	38.4	
1919											
Jan. 4	23	1020	8.0	tr	146	168	330	634	21.0	41.2	
Feb. 17	24	980	8.4	tr	195	182	320	697	15.0	31.2	
March 3	25	940	8.1	tr	219	154	265	638	16.0	34.0	
April 1	26	1150	8.0	00	244	182	350	776	24.0	41.7	
July 1	27	?)400	9.7+	48	122	70	200	430	4.0	20.0	
Aug. 2	28	810	8.2	tr	244	98	265	607	13.0	32.0	
Oct. 1	29	1070	8.5	tr	220	196	285	701	22.0	41.0	
Nov. 1	30	770	8.4	tr	244	126	195	565	14.0	37.0	

For purposes of comparison with the above analyses of the irrigation water, samples of the underground water of the Experiment Farm at Bard have been examined and the results are reported in Table IV.

TABLE IV.
Bard Water Samples, March, 1922.

Date 1922	Description	Total Salts Br.	pH cold	CO_3	HCO_3	Cl	SO_4	Total acids	Soap requirement per 100 cc.	Lime Index Factor .002
17 February	Irrigation water	.111	8.1	0	183	160	330	673	25	45
17 February	Drainage	.084	8.6	tr	274	160	190	624	20	48
17 February	Well No. 1	.128	7.0	0	152	373	200	725	36	56
	Well No. 2	.101	8.1	0	305	212	190	707	19	38
	Well No. 2-a	.149	7.5	0	366	266	315	947	40	54
	Well No. 3	.115	8.2	0	274	177	335	786	29	50
	Well No. 4	.159	8.1	0	427	301	335	1063	29	36
	Well No. 5	.136	8.1	0	244	186	355	785	28	41
	Well No. 6	.119	8.2	0	305	222	250	777	30	50
	Well No. 7	.190	7.3	0	91	550	290	931	47	49
	Well No. 8	.082	8.0	0	381	142	70	593	13	31
13 Dec. ('21)	Composite 1	.105	8.1	0	335	168	190	693	19	36
20 January	Composite 2	.099	7.8	0	320	213	160	693	23	47
20 January	Composite 3	.099	7.8	0	305	213	175	693	23	47
17 February	Composite 4	.123	7.6	0	259	275	280	814	29	47
17 February	Deep well	.084	8.2	0	244	213	120	577	20	48
	Mean	.117	7.9	0	279	239	236	755	27	45
	Composite - all samples	.113	7.9	0	274	266	280	820	27	48
	Composite - gravimetric	.111					328			

The ground water samples of this series were chiefly collected from wells on the Experiment Farm installed some years since for the purpose of noting the fluctuations in ground water level. There are nine of these wells distributed over the 160 acres of the Farm. The samples from these wells were collected February 17, 1922.

In addition to the samples from the individual wells, the table includes one sample which represents a composite of these well waters, taken December 13, 1921, and two samples of a composite taken January 20, 1922, together with a composite of the samples from the wells collected February 17.

Table IV also includes a report on a sample of irrigation water collected at the Experiment Farm February 17, a sample of drainage water from the open drain on the south side of the Experiment Farm collected on the same date, and a sample of water from the deep well on the Experiment Farm from which the domestic water supply is obtained.

In addition to reporting the constituents of these water samples by the same methods discussed with Table 3, a gravimetric determination of the total salts was made on a composite of all of the sixteen samples reported in Table 4, and the gravimetric determination of the sulphates was also made on this composite for purposes of comparison with the results from the determinations made by the turbidity method for the individual samples.

C. S. S.

WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX. March 11, 1922. No. 10

Western Irrigation Agriculture.

San Antonio.

During the three weeks period ending March 4, the following meteorlogical data were recorded: maximum temperature of 87 occurred February 22; minimum of 21 occurred the night of March 2; greatest daily range of 50 on February 22; precipitation .97 inch; clear days 10, cloudy 10, and partly cloudy 1. The greatest amount of rainfall recorded during 24 hours was .33 inch on February 23. The entire precipitation came in gentle showers and no run-off of consequence occurred.

Freezing temperatures were recorded for six nights of the period as follows: February 14, 31.5; February 15, 26; February 28, 23; March 1, 25; March 2, 21; and March 3, 23. Except for about two hours, the temperature was below freezing from 8:00 p.m. February 28 until 10:00 a.m. March 2. A few peach and almond trees were in bloom at the time of the last freeze and many such open buds were killed. The damage to fruit trees on the whole is believed to have been slight, however. A large amount of the more tender, early, garden crops was either frozen to the ground or killed entirely. Some early planted field corn in the San Antonio region suffered materially from the continued cold weather and many fields will no doubt require replanting.

A lattice fence three and one-half feet high by eighty-four feet long was built along the west side of the garden, at the farm residence, to replace the euonymus hedge which had practically all died from root-rot.

All corn plats on the rotation and tillage fields, and all of field C-6, were disked and harrowed in preparation for planting. Sufficient soil moisture is present to germinate such crops as corn, milo and the hay sorghums, but the surplus is not sufficient to carry the crop for more than a couple of weeks.

In addition to the work indicated above, farm labor was kept busy on miscellaneous repair of buildings and water system; recleaning and grading of seed for planting; planting garden; pruning orchards; hauling brush; and general cleaning of buildings and grounds.

Messrs. C. J. King and H. Gregory McKeever of the Office of Crop Acclimatization, accompanied by Mrs. King, visited the experiment farm March 2.

Demonstrations on Reclamation Projects.

Minidoka.

During the week ending March 4 a retest was made on three herds of dairy cows in which reactors were found last September. One registered cow reacted to the test and was killed Saturday. She showed lesions in all the principal body cavities. Due to the recent tests and the reactors that have been found many farmers have made requests for tuberculosis tests.

A one-day potato institute was held at Rupert during this week. Professor E. R. Bennett of the Idaho Extension Department and County Agent Barber of Burley were the principal speakers. The average attendance was 85 potato growers. This proved to be one of the best meetings ever held in Rupert from an educational standpoint. The potato growers were well pleased with the lectures.

Newlands.

During the week ending February 25, a trip was made to Reno, Nevada, for the purpose of conferring with the State Disease Control office and the State Extension Department. The Newlands project has been visited recently by an outbreak of rabies. There have been a large number of dogs reported rabid and three people have been infected. During the past week, four cases of rabid dogs have been reported in or near town. This office has taken considerable interest in the outbreak and has cooperated with the State Disease Control Board in facilitating the diagnosis of cases. There have been a few cases of suspected rabies in stock. The animals died and no laboratory diagnosis was made.

During the week, one article was contributed to the local paper on timely agricultural items. Four dairy herds were tested. Forty-four calls for assistance were received during the week.

The first part of the week ending March 4 was spent in Salt Lake City. This trip was made for the purpose of having a conference with Mr. J. E. Dorman and Mr. Johnson of the Western Dairy Division regarding the proposed transfer of the local creamery to the Mutual Creamery Company, and the course of action to be taken in the event that the local creamery was not sold to the Mutual Creamery Company. Other matters regarding the general dairy conditions of the country were discussed with much profit and many constructive ideas were gained by the visit. The days spent away from the project during this trip were Sunday, Monday and Tuesday. On Saturday of the week a meeting of the stockholders of the creamery was attended. At this meeting the stockholders voted to transfer the local creamery to the Mutual Creamery Company and accept 2500 shares of Mutual Creamery stock as payment. The local creamery was valued at $25,000.00 in the transfer. The stockholders voted their stock at the rate of one vote for each share. The shares that were voted for the sale were four times as many as voted to retain the creamery. The local creamery has not had a very successful year and some of the heavy stockholders lost faith in their ability to operate the creamery at a profit and compete. A number of the stockholders were enthusiastic for keeping the

creamery as a local institution but were outvoted.

Twenty-seven calls for assistance were received during the week.

Some time was devoted to assisting in planning a dairy barn for one of the ranchers.

Shoshone.

The larger part of the agriculturist's time during the week ending March 4 was used by hay producers who wished to be put in touch with buyers and by buyers who wished to learn the location and price of hay. Most of the latter were Farm Bureaus and stockmen from Montana. All the hay that should be removed from the project has now been disposed of but demand from Montana points was still strong at the end of the week. The hay sold during the week brought growers $10 to $12 on cars.

Two Farm Bureau meetings were attended; one at Ralston and one at Deaver. At Deaver, the organization of a potato growers' association was discussed but final action was postponed until later.

Three farm visits were made and 71 requests for assistance received.

Uncompahgre.

The organization of boys' and girls' clubs was taken up during the week ending March 4, seven schools having been visited, the program for the year explained and enrollment cards given out. About 200 enrollment cards were asked for in these seven schools. The clubs being offered are the same as for last year: viz., calf club, pig club, sheep club, poultry club, corn club, potato club, sewing club, and canning club. The other schools of the valley will be visited as fast as can be arranged for so that the work can start a little earlier than heretofore. Present indications are that the enrollment will be very much heavier than last year.

A meeting of the Spring Creek Mesa Livestock club was attended on Saturday afternoon. Thirty boys and girls, most of them members of the first year pig club were present and there were quite a number of members absent. The club is starting off very enthusiastically with Mr. Allen Nash as local leader. They plan to meet every two weeks all summer for stock judging and instruction in feeding and care of livestock.

Demonstrations in selecting breeding hens have been given on four farms this week and there have been several requests for culling work which have been put off on account of the difficulty of doing that work at this season. Milk tests were run for two men.

Two farmers' meetings were attended at one of which a committee was appointed to meet March 15 and outline a program of work for the community. Mr. Jay, State Livestock Specialist, and Mr. Jamieson, State Poultry Specialist, were present at the other meeting, which was in Delta county.

By request of the City Manager of Montrose, a meeting of the Council was attended and the tuberculin-testing of all dairy cows contributing to the milk supply of Montrose was discussed. A committee composing the City Health Officer, the City Attorney, the County Agent, Federal Veterinarian and project

Agriculturist was appointed to draft an ordinance providing for such a test. In this connection it was suggested that several small neighboring towns might cooperate in the employment of a dairy and food inspector to the advantage of all.

Data were collected by request showing amounts of cured meats, cooking fats, and cheese shipped into Montrose in a year. These showed 104,600 pounds cured meats of all kinds, 80,990 pounds of fats, and over 20,000 pounds of cheese (estimated) imported each year.

WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
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Western Irrigation Agriculture.

Yuma.

The maximum temperature for the week ending March 11 was 76, minimum 32, and greatest daily range 38. Windy days, cold nights and occasional frosts have occurred during the last two weeks. Compared with the three previous seasons, the spring weather this year has been much colder.

Cotton planting on the project is being held up awaiting warmer weather. Alfalfa is making a slow growth and the first cutting will be about three weeks later than usual.

Several plantings of grapes are being made on the project and in the adjacent irrigated valleys. A carload of cuttings shipped in from the San Joaquin Valley, in California, are being treated this week in Yuma. This work is under the supervision of the Horticultural Commission of Arizona. The shipment is being given the hot water treatment for the control of phylloxera. The bulk of this material will be planted near Wellton, in the Gila Valley east of Yuma. The cuttings are all of the Thompson Seedless and Malaga varieties of grapes.

The operation of the new pumping plant on Unit B of the Yuma Mesa was tested out March 4. Officials of the Reclamation Service in charge of this work are well pleased with the test.

Station work performed during the week consisted of plowing plats D-1 to D-17; digging out fig trees, C-13 to C-17; digging out date nursery, A-15-5; transplanting miscellaneous nursery stock; and general hoeing and irrigating.

Demonstrations on Reclamation Projects.

Shoshone.

During the week ending March 11, there were received forty requests for assistance and 6 farm visits were made.

Orders for a carload of Dakota dry-land grown alfalfa seed were listed during the week by the local farm bureaus of Park County, and the Agriculturist spent two days at Deaver and Frannie helping new settlers secure information as to the location and price of alfalfa and grain seed and encouraging them to order through the farm bureau of Park or Big Horn Counties. On Saturday evening he assisted in the organization of a bureau at Frannie, fifteen men who filed on land last fall being present and most of them became members. Another meeting at Frannie has been called for March 24 to include only new settlers, at which various matters pertaining to irrigation and farming will be considered.

Minidoka.

The greater part of the week ending March 11 was spent with County Agent Barber of Cassia County working out a rotation system for an eighty-acre farm. The plan is to select a number of progressive farmers and use them as demonstrations in planning and working out a rotation system for their farms. County Agent Barber is very much interested in this phase of the work and will give some time to the work during the summer and winter months.

The remainder of the week was spent doing miscellaneous work. It has been impossible to do any country work because of the condition of all roads running north and south. The recent heavy snow has been drifted into these roads until some roads have snow drifts from three feet deep up to ten feet. All traffic along these roads has ceased. Because of this condition a great amount of time has been spent in the office.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX | March 25, 1922 | No. 12

Western Irrigation Agriculture.

Newlands.

The following is a report of the station activities during the period March 5 to 25:

The ground has become sufficiently thawed to leave it in fine condition for the early spring work. Plowing has been done on Y1, 2, 7, 8, 9, and 10. All previously fall-plowed ground has been harrowed and the rough spots smoothed off with the tail-board scrapper. Final leveling and preparation of the garden plat on B has been finished and if the present fine weather continues planting will be commenced there in a short time.

The hauling of alum was continued until March 23. More would have been hauled but it was necessary to return the mules loaned by the U. S. Reclamation Service as they were to be sold at auction at that time. Quite a little of the ore still remains to be crushed and screened and spread on the various plats.

The plats so far treated are Y 3, 4, and 6. The first two plats received an application at the rate of 20 tons per acre. Y 6 received half that amount. The ore applied on these plats will average about 21 percent crystallized aluminum sulphate. The next two plats to be treated are Y 1 and 2. These plats as previously planned will receive double the amount applied on Y 3 or 4 if there is enough ore. One will be plowed under and the other application will remain on top.

Twenty small pigs were purchased during this period. At present they are receiving a feed of skim milk, rolled barley and shorts in preparation for the hog experiments as soon as the alfalfa is ready to pasture.

This year promises to be a very good one for fruit. The continued cold weather has prevented the trees from blossoming as early as last year. Thus, they should escape the killing frost that occurs a little later.

The orchard has been sprayed with lime-sulphur for red spider. Also all the trees have been whitewashed. The prunning has progressed rather slowly due to so much other work demanding the attention of the superintendent and his assistant. This work is being pushed as much as possible and this week should see all the orchard finished.

Demonstrations on Reclamation Projects

Minidoka.

The greater part of the week ending March 18 was spent assisting the Secretary and the Manager of the 1920 Minidoka County Wool Pool clear up the accounts of that pool. The wool pooled during 1920 was consigned to the

warehouse of the Columbia Basin Wool Warehouse Company, at Boston. This wool has been in storage for nearly two years. The checks for this wool were received Saturday, March 11. The total wool pooled was 67385 lbs. which sold for a price ranging from 14¢ to 25¢. The total amount paid for the pool was $10,905.53 with $4,403.29 charges, leaving a net profit of $6,502.24. This amount was paid out to the 153 farmers who pooled the wool. This was anything but a successful pool due to the low price received for the wool and the extremely high charges against the wool. After all the charges were paid the farmer received about half what the wool sold for. The 1921 pool was very successful so it is certain that the farmers will wish to pool again this year. It has been definitely found out as a result of this year's experience that it does not pay to store or consign wool to any of the Eastern or even distant warehouses. It has been decided to pool and then to store the pooled wool in local warehouses.

The remainder of the week was spent doing office work and other miscellaneous work. The roads are impassible at this time.

Newlands.

During the week ending March 18, there were received sixty-eight calls for assistance and herd testing work was performed for five dairymen. At a community center meeting a talk was given on the subject of silos and ensilage feeding. This was followed by a very interesting discussion which showed that the farmers were interested in providing a dairy feed to supplement the straight alfalfa ration now being generally fed. There has been a considerable number of inquiries recently on the subject of silos. It is the plan of this office to devote considerable time to the subject before corn-planting time. Contributions to the local papers will be made on the subject and other farm meetings will be addressed on the subject.

On Saturday, there was a mass meeting of the farmers of the project, who are interested in cantaloupe growing. This meeting was called for the purpose of considering a marketing proposition offered to the farmers by a New York City firm. This firm proposes to buy the entire cantaloupe crop up to 1,000 acres at a minimum price of $1.00 per crate for first and 90¢ per crate for seconds delivered at the packing sheds, the buyer to furnish the crates. The farmers were well pleased with the offer and definite arrangements are to be made at once to close a contract with this firm. This offer is contingent on a minimum of 300 acres. It is expected that there will be at least five-hundred acres planted.

Shoshone.

During the week ending March 18, forty-one requests for assistance were received and three farm visits were made.

Aside from miscellaneous matters relating to livestock, the project's milk-testing and farm flocks, received especial attention. Related to the latter, data covering the number, kind and cost of production from January 1, 1922 to date were secured.

The stockholders of the Powell Cooperative Creamery held a final meeting to complete the arrangements for the distribution of cash on hand. Mr. Hower, President of the Wyoming Farm Bureau Federation, spent Thursday, Friday, and Saturday on the project, holding meetings at Garland, North Side and Powell. Park County now has the largest paid-up membership of any county in Wyoming.

Warm weather prevailed throughout the week and in some places frost and moisture had been removed sufficiently to permit the crowning of alfalfa. The week closed with butterfat at 25¢ per pound and eggs at 15¢ per dozen.

Uncompahgre.

Club work took up most of the time during the week ending March 18, seven schools having been visited to explain the work and distribute enrollment cards to those who wished them. Enrollment cards are coming back in satisfactory numbers. A meeting of the Garnet Mesa Pig Club was attended Saturday afternoon.

Breeding pens have been selected from two flocks of poultry. There are not many calls being received for this work at this time but a great deal of interest is being shown in the culling work and several communities are lining up strongly for a general campaign in poultry-culling next fall.

On Wednesday afternoon a committee of the Farm Bureau of Sunnyside was in to draw up a program of work for their community. Boys' and Girls' club work, poultry improvement, road improvement and a community fair were the projects selected for the present year's program.

A local Holstein breeder and two men who are leasing cows from him requested assistance in drawing up a five-year lease contract. This was done this week, the contract signed, and the cows turned over.

The local creamery has been receiving more cream through the winter months than could be manufactured into butter without causing an over-supply. This condition has existed in other localities also and surplus cream has been shipped all winter to outside points. Five creameries, including those of Hotchkiss, Cedaredge, Nucla, Delta and Montrose have formed an association and plan to manufacture all cream received into butter, pooling the surplus and keeping it in cold storage at Delta until a carload accumulates and it will be shipped under one brand. The association of creameries is now looking for a man who will supervise the making of butter in all the creameries and attend to the marketing of the surplus. Each creamery will continue to supply its local market under its own brand. Mr. C. N. Shephardson, of the Animal Husbandry Department of the State Agricultural College has been assisting the creameries in the organization and in finding a suitable man to direct the work.

The fifth annual farmers-businessmen's conference of Delta county was held at Delta on Saturday with between 500 and 600 present. A banquet was served at noon by the business men with the farmers as their guests, following which a program was given consisting of talks from three men from the State Agricultural College and Professor W. H. Olin, Agriculturist for the D.R.G.W. Railroad. This event is intended to promote a better understanding between the farmers of Delta county and the Chamber of Commerce of Delta and is becoming very popular.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
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Western Irrigation Agriculture.

San Antonio.

During the three weeks period ending March 25 the weather continued very dry. A rain of .49 inch occurred March 24 and 25 which temporarily relieved growing vegetation and will aid materially in the germination of recently seeded spring crops. Meteorological data recorded for the period were as follows: maximum temperature 87, minimum 37, greatest daily range 42; precipitation .56 inch; 14 days clear, 4 partly cloudy, and 3 cloudy.

Green manure on rotation plats A4-12, 16, 19; B4-18; and B6-7, 9, 17, was plowed under. Due to extremely dry weather the field peas had made very little growth, and the growth of rye on B4-17 was so small as hardly to give a greenish color to the plat. The manurial effect of vegetative growth turned under on these plats is negligible, and spring plowing has left them in extremely poor condition for planting.

Disking and harrowing was done on all rotation and tillage plats to be planted to milo, sorgo, and cotton, also on fields B 4, C 3, 4 and 5, F 3, and the Herbst's tract.

Field plantings were made during the period as follows:

Crop	Nature of Experiment	Field and Acreage		Date
Corn	Rotation and Tillage	Rotation -	5.25 acres	March 6&7
Corn	Variety test	C 6	2.2 "	March 7
Corn	Spacing test	C 6	1.0 "	March 7
Corn	Breeding and Selection	Herbst's	.75 "	March 8
Corn	Do	C 3	.90 "	March 8
Corn	Do	F 3	1.00 "	March 8
Milo	Rotation and Tillage	Rotations	3.50 "	March 9
Sorghum	Seed Selection	F 3	.50 "	March 10
Sorghum	Do	Herbst's	.20 "	March 10
Sorghum	Rotation and Tillage	Rotation	3.00 "	March 10
Sorghums	Variety test	C 6	1.80 "	March 11
Sorghum	Do	B 4	1.00 "	March 11
Sorghum	Milo - Hegari comparison	C 4	.75 "	March 13
Sudan Grass	Rotation and Tillage	Rotation	.50 "	March 14
Sorghum	Midge investigations	Entomological Laboratory	1.00 "	March 16
Sudan Grass	Pasture	D 4, D 5	4.00 "	March 17&18

The Laguna variety of corn, used in planting rotation plats, the spacing test, and as a check in the variety test, has germinated slowly and to a thin stand. All plantings of this variety were made from the same stock of field selected and hand-graded seed, except five rows of the spacing test. These five rows germinated quickly and to an excellent stand. The only difference in the two stocks of seed is that the latter was shelled just previous to planting, while the other was shelled in the fall. Sumac sorghum seeded on plats which had green manure turned under has failed to germinate, due to lack of moisture in the seed bed. Seed bed moisture content was good on most fields and emergence has been very satisfactory in all plantings, except as noted above. No surplus moisture has been stored in the soil and this season's crops are entirely dependent on precipitation occurring during the growing season.

Work done at the station during the period has included garden, orchard, and ornamental planting; pruning of plants in orchards and grounds; spraying fruit trees in orchards A 1, B 3, and E 3; hoeing and cultivating orchards; watering young plantings in orchards and grounds; soil sampling on rotation and tillage plats; and miscellaneous repair and upkeep of buildings and grounds. Also, two boys have been kept in the fields shooting birds and ground squirrels since March 7.

Messrs. Ratliffe and Hooton left the experiment farm on the afternoon of March 23 for a point on the Rio Grande, about fourteen miles southwest of Comstock, Texas, known as Good-enough Springs, for the purpose of collecting specimens from, and obtaining additional data regarding, Pistache Texana trees selected in 1911 by Prof. S. C. Mason as representative types of this species. The station's Ford truck served as a means of transportation, bed, and commissary. They returned to the station Sunday evening, March 26.

Umatilla.

The spring season is very backward and the farmers are much behind with their work on account of the long continued cold weather and snow during the winter. The seasonal work on the Farm however is about up to normal.

Labor was employed during the week ending March 25 on a supplemental pipe line for the irrigation experiments in the B fields. One team was kept busy disking up the border dikes and springtoothing cheat grass out of the alfalfa.

There is a considerable demand for demonstration work in planning and laying out irrigation systems. One day was spent in this work on the West Extension and two half-days on the East side project.

Mr. Wright left the farm for the Prosser, Washington, station on March 11.

Demonstrations on Reclamation Projects.

Newlands.

During the week ending March 25, there were received fifty-two calls for assistance, most of which were made in person to the office. Herd-testing work was performed for five herds. Considerable interest has been shown lately regarding silo construction. For the benefit of farmers interested in silo

construction, an exhibit is being prepared in the office of the various types of silos shown in photographs together with details and costs of construction. This method seems to stimulate more interest and gives the interested parties some concrete points to think about.

During the week one article of 800 words was prepared on the subject of ensilage feeding as a supplement to alfalfa hay. A second article was prepared of about the same length setting forth the necessity of supplementing an alfalfa hay ration with the proper grain supplements to enable our dairy herds to work to the best advantage.

Some time was devoted to assisting one rancher in planning a dairy barn and corral arrangements for a new place. Assistance was rendered in the selection of a registered Guernsey bull for one of the project dairymen to be shipped from Wisconsin. In order to improve over the previous bull on this ranch, it was necessary to find one with an average production of near 700 pounds butter fat for his two nearest dams. It has taken considerable correspondence to locate such an animal at a price within the means of the purchaser.

Shoshone.

During the week ending March 25, forty-three requests for assistance were received and ten farm visits were made.

Besides miscellaneous matters, the location and selection of alfalfa and small grain seeds occupied most of the time. A trip was made to Deaver and Frannie to give further assistance in the matter of securing good, clean seeds. Oats and barley have been especially difficult to locate.

About thirty of the new settlers in the Frannie community are now on their units and several are plowing. It appears that about half of the thirty have had more or less experience irrigating, but among the other half are a number who have never even worked on a farm. The meeting announced for March 24 for the benefit of these men had to be postponed until March 28.

Uncompahgre.

Club work continued to demand considerable time during the week ending March 25; four schools were visited and a big meeting was attended at Cedaredge to explain and discuss club work with pupils and patrons of the school. The County Superintendent of schools in Delta county is giving all the assistance possible in this work to get the clubs organized in Delta county.

Milk tests were run for six men, five of whom are keeping records with their dairy herds. Breeding hens were selected for one man.

The meeting attended at Cedaredge was a three days' farmers' institute held under the auspices of Cedaredge Chamber of Commerce, which includes business men of the town as well as the farmers. Several speakers from the State Agricultural College were present and appeared on the program.

Meetings were held in Delta on Friday for the purpose of discussing the possibility of reinstating a County Agent in Delta county. This meeting was the result of a series of meetings held in February in which representatives of different communities were selected to meet together in a general county meeting. No definite action was decided upon for the present, although practically all of the men at the meeting were strongly in favor of a County Agent and reported that their communities favored the employment of an Agent as soon as it can be done. Mr. R. W. Schafer, District Leader of County Agent work for the Western Slope, was present and led the meeting.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS.

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Western Irrigation Agriculture

San Antonio.

The maximum temperature for the week ending April 1 was 84, minimum 48, greatest daily range 32, and precipitation 3.80 inches. Two days were recorded as cloudy, two partly cloudy and three clear. A large proportion of the rainfall was taken into the soil; however, on account of the torrential character of the rain during comparatively short intervals, an appreciable run-off occurred and at least two quite serious "washes" were made on the Experiment Farm fields. The rain appears to have been general throughout Southwest Texas although the amount of precipitation varied through a wide range over a comparatively short distance; - the San Antonio office of the Weather Bureau reported 2.31 inches of rainfall during the above period. The recovery of the small grain crops, especially of oats, has been remarkable.

The following fields and plats were cultivated: - Corn variety test, field C 6; corn spacing test, field C 6; sorghum variety tests, fields B 4 and C 6; and milo plats on rotation and tillage fields. Weeds were hoed from farm fence rows, and from orchards A 1 and B 3.

Wet weather prevented field work during a large part of the week and farm labor was used for miscellaneous clean-up work, and for the repair of machinery and buildings. The room under the machinery shed roof which was formerly used to house the gasoline gas machine apparatus, was floored with cement and fitted up for use as a soil-moisture laboratory.

Demonstrations on Reclamation Projects.

Shoshone.

During the week ending April 1, twelve farm visits were made and thirty-four requests for assistance were received.

The postponed meeting of new settlers at Frannie occurred Saturday evening. A program including discussions of soil preparation, crops, and irrigation was given. Mr. McDaniel, County Agent of Big Horn County and Mr. R. A. Allan, a farmer living near Powell, assisting. The room was crowded and much interest evidenced.

Seed potatoes are engaging the attention of growers as it has been found that many of those saved last fall show disease. Two carloads are to be secured from the vicinity of Big Timber, Montana, and one carload of

Idaho Rurals has been unloaded. The indications at this time are that there will be a considerable increase in potato acreage due to dissatisfaction with the price of beets. A pool of orders for corrosive sublimate to be used in treating seed potatoes is being formed.

A trip to Frannie to give assistance relative to soil preparation and one to Deaver to attend to several livestock matters were made during the week.

The price of butter fat at the Powell Creamery on April 1 was 29¢ and the average for the month of March was 26.2¢.

Uncompahgre.

The last schools on the project were visited during the week ending April 1, to organize clubs, and one club meeting was attended. Next week an effort will be made to secure local leaders for as many clubs as possible. The present enrollment for Montrose County is 260 and for that part of Delta county on the Uncompahgre project 27.

A conference of merchants and farmers at Grand Junction was attended on Tuesday at the request of County Agent McCann and a talk given on dairying. W. H. Olin of the D. & R. G. Railroad, T. W. Monell, County Clerk of Montrose, Mr. McCann and the private secretary of Governor Shoup were on the program, about 450 being present.

A meeting of beet growers was attended at Olathe that night but on account of storm only a few were present.

Miscellaneous work occupied the rest of the week. Two calls regarding pastures and several regarding tuberculin testing were answered.

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W E E K L Y B U L L E T I N

Of the Offices of

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And
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Western Irrigation Agriculture

Newlands.

The following is a report of the station activities during the period March 25 to April 10, 1922:

The general rush of spring work has kept everyone exceptionally busy. Two men were placed with the teams in order that the ground to be seeded to grain could be prepared in time for an early planting. The rotation plats F 1 and 13; E 1, 2, 7, and 8; D 3, and 7 have been seeded to wheat; F 8 and 12 to barley. Also all plats on G have been seeded to barley. The preparation of the Y series is being pushed as much as possible. All the plats from 1 to 18 inclusive have been plowed. They are now being harrowed and leveled in preparation for seeding of barley as a nurse crop for the alfalfa that will be planted a little later.

Orchard pruning has been completed. To date five peach trees have blossomed, one tree a Carmen peach, blossoming March 29, and the other four, Amygdalus davidiana, blossoming at varying dates from March 29 to April 1. There has only been one year since being planted some eight years ago, that the Amygdalus davidiana has set fruit.

Quite a number of plants have been received and planted in the nursery during the last week or so. There have been 200 Black Locust, 200 Carolina poplars and 100 Concord Grape cuttings received besides several hundred cuttings from local shade trees. For experimental purposes, five plants each of Campbell's Early Grape, Niagara Grape, Concord Grape, Carrie Gooseberry, Oregon Gooseberry, Pearl Gooseberry, Houghton Gooseberry, Perfection Currant, White Grape Currant, and Champion Currant have been planted. One hundred plants of the Progressive Strawberry have also been set out.

In the vegetable garden all of the early planting has been done. Such seeds as onion, peas, carrots, parsnips, salsify, turnips, beets, radish and lettuce were planted April 6. An experiment with ammonium sulphate and acid phosphate on onions is being carried out. One row received acid phosphate at the rate of 330 pounds to the acre, another row ammonium sulphate at the rate of 440 pounds to the acre and a third row the two combined equally at the rate of 450 pounds to the acre.

There still remains some alum to be applied. Plat Y 1 and 2 are yet to receive an application. The coming weeks should see all the plats treated. The last applied to Y 6 showed an average percentage of 18.5. As mentioned in a previous report, this plat received treatment at the rate of 10 tons per acre.

During the plowing of the Y series, plat Y 11 was plowed. As will be recalled, an experiment with alum was carried out on this plat last fall. This experiment was as follows: Y 11 was divided lengthwise into three equal plats 85 feet by 230 feet, numbered 1, 2, and 3. Number 2 was again divided into halves A and B. On a line drawn through the center of A. holes were drilled at intervals of 6 feet to a depth of 2 1/2 feet or until loose sand was encountered. These holes were then loaded with about one-half stick of dynamite and shot. An application of alum at the rate of 4 tons of soluble substance to the acre, was applied to all of plat 2. Water was then turned in and the whole of Y 11 was kept under water for 24 hours.

After the soil had dried out following the spring thaw this year, there was a marked difference in the treated plat 2 and the untreated plats 1 and 3 on Y 11. The treated plat remained loose and mellow on the surface, the untreated plats were hard and cemented. The general effect of the dynamiting was not beneficial as it allowed the alum to wash down into the hole and the surface bordering the hole remained cemented.

Upon plowing last week there was a very marked difference in these three plats. The untreated plats turned over in large clods, but the treated plat was so mellow and fine in appearance that it hardly seemed necessary to harrow. In fact the difference in appearance was so great that it was thought possible to photograph it. Mr. Headley made two exposures from different locations. At present these films are not developed.

These plats have caused quite a little interest locally. There have been several groups of people out to visit the station for this reason. The agricultural class from the high school and their teacher were among the first visitors. Such was their keen interest that they have since returned for a second visit. The local school superintendent and a large class of pupils visited these plats during a snowstorm.

Besides these people there have been numerous farmers in to view the effect of the alum. In all cases the marked beneficial appearance of the treated plat in this case over the checks has left everyone who has viewed this experiment quite excited over the possibilities of alum in reclaiming adobe and cement soil.

Scottsbluff.

RESULTS FROM LAMB FEEDING TESTS CONDUCTED AT THE SCOTTSBLUFF EXPERIMENT FARM DURING THE WINTER OF 1921-1922 TOGETHER WITH THE THREE-YEAR AVERAGE AMOUNT OF FEED AND COST OF FEED PER HUNDRED POUNDS GAIN.

Cost of lambs per hundred weight:

At Denver	$	8.00
In feed lot		8.56

Average weight per lamb

At Denver	65 pounds.
In feed lot	63 pounds

Twenty-five lambs per lot
On feed eighty days
Corn and dried pulp were fed at the rate of 1 pound per lamb daily after requiring 25 days in which to get them up to this amount. Cottonseed cake was fed at the rate of one-third pound except in Lot No. 7 where a half pound was fed. Two pounds of silage per day per lamb was fed. The lots getting beet tops were fed all the tops they would clean up. All lots were fed all the hay the lambs would eat.
The prices of feed were as follows:

Hay per ton	6.00
Pulp do	15.00
Silage do	3.00
Cottonseed cake per ton	50.00
Tops (per ton of beets)	.30
Corn, cwt.	.90

Average gain per lamb per lot

Maximum	34 pounds
Minimum	18 pounds
Average of 12 lots	28 pounds

Cost per hundred pounds gain 1921-1922:

Maximum	6.80
Minimum	3.88
Average for 12 lots	5.04

Appraised value per hundred weight. (This appraisement was based on the market quotations for Wednesday, March 15, which showed a top figure of $14.75.)

Maximum	14.75
Minimum	14.00
Average for 12 lots	14.41

Profit per lamb

Maximum	5.15
Minimum	3.06
Average for 12 lots	4.65

In figuring profit per lamb, each lamb was charged with 15¢ for interest, 40¢ for shipping charge, and 8 pounds shrink per lamb was allowed from feed lot to Omaha.

A TABULATED STATEMENT OF THE LAMB FEEDING EXPERIMENTS AT THE SCOTTSBLUFF EXPERIMENT FARM, 1921-1922.

Lot No. 1.	This Year	3-year Average
Ration - Hay - Corn		
Daily Gain per lamb	0.34	0.30
Pounds Feed per 100 Pounds Gain:		
Hay	542	583
Corn	260	302
Cost of Feed per 100 Pounds Gain	3.95	4.47
Appraised value per 100 Pounds	14.40	
Profit per Lamb	4.78	
Lot No. 2.		
Ration - Hay - Corn - Cake		
Daily Gain per lamb	0.41	0.37
Pounds Feed per 100 Pounds Gain		
Hay	524	457
Corn	219	242
Cake	74	81
Cost of Feed per 100 Pounds Gain	5.42	5.58
Appraised Value per 100 Pounds	14.65	
Profit per Lamb	5.06	
Lot No. 3.		
Ration--Hay - Pulp - Corn		
Daily Gain per Lamb	0.32	0.29
Pounds Feed per 100 Pounds Gain		
Hay	712	631
Pulp (40 days)	170	204
Corn (40 days)	114	129
Cost of Feed per 100 Pounds Gain	4.44	4.58
Appraised Value per 100 Pounds	14.25	
Profit per Lamb	4.49	
Lot No. 4.		
Ration - Hay - Pulp - Corn - Cake		
Daily Gain per Lamb	0.38	0.35
Pounds Feed per 100 Pounds Gain		
Hay	537	486
Pulp (40 days)	142	166
Corn (40 days)	95	105
Cake	81	87
Cost of Feed per 100 pounds Gain	5.54	5.82
Appraised Value per 100 Pounds	14.50	
Profit per Lamb	4.72	

Lot No. 5.	This Year	3-year Average
Ration - Hay - Pulp		
Daily gain per lamb	0.31	0.27
Pounds Feed per 100 Pounds Gain		
Hay	703	652
Pulp	289	357
Cost of Feed per 100 Pounds Gain	4.28	4.63
Appraised Value per 100 Pounds	14.20	
Profit per Lamb	4.23	
Lot No. 6.		
Ration - Hay - Pulp - Cake		
Daily Gain per Lamb	0.39	0.35
Pounds Feed per 100 Pounds Gain		
Hay	505	478
Pulp	227	267
Cake	77	87
Cost of Feed per 100 Pounds Gain	5.15	5.61
Appraised Value per 100 Pounds	14.65	
Profit per Lamb	5.05	
Lot No. 7.		
Ration - Hay - Pulp - 1/2# Cake		
Daily Gain per Lamb	0.40	0.38
Pounds Feed per 100 Pounds Gain		
Hay	472	453
Pulp	223	245
Cake	117	118
Cost of Feed per 100 pounds Gain	6.02	6.15
Appraised Value per 100 Pounds	14.60	
Profit per Lamb	4.84	
Lot No. 8.		
Ration - Hay - Pulp - Silage - Cake		
Daily Gain per Lamb	0.40	0.39
Pounds Feed per 100 Pounds Gain		
Hay	396	285
Pulp	220	242
Silage	464	499
Cake	75	79
Cost of Feed per 100 Pounds Gain	5.40	5.40
Appraised Value per 100 Pounds	14.75	
Profit per lamb	5.15	

Lot No. 9.	This Year	3-Year Average
Ration - Hay - Silage - Cake		
Daily Gain per lamb	0.22	0.22
Pounds Feed per 100 Pounds Gain		
Hay	725	561
Silage	836	972
Cake	135	137
Cost of Feed per 100 Pounds Gain	6.80	6.56
Appraised Value per 100 Pounds	14.00	
Profit per lamb	3.06	
Lot No. 10.		
Ration - Hay - Tops - Corn		
Daily Gain per lamb	0.37	0.35
Pounds Feed per 100 Pounds Gain		
Hay	388	391
Tops (per ton of beets)	1.84	1.68
Corn	240	260
Cost of Feed per 100 Pounds Gain	3.88	4.01
Appraised Value per 100 Pounds	14.50	
Profit per Lamb	5.11	
Lot No. 11.		
Ration - Hay - Tops - Pulp - Cake		
Daily Gain per lamb	0.42	0.39
Pounds Feed per 100 Pounds Gain		
Hay	343	355
Tops (per ton of beets)	1.43	1.49
Pulp	210	238
Cake	72	77
Cost of Feed per 100 Pounds Gain	4.83	5.23
Appraised value per 100 Pounds	14.35	
Profit per lamb	5.05	
Lot No. 12.		
Ration - Hay - Tops - Cake		
Daily Gain per Lamb	0.30	0.26
Pounds Feed per 100 Pounds Gain		
Hay	545	597
Tops (per ton of beets)	2.16	2.47
Cake	100	117
Cost of Feed per 100 Pounds Gain	4.78	5.45
Appraised Value per 100 Pounds	14.10	
Profit per Lamb	4.05	

Note: Cottonseed cake was used in the tests.

Yuma.

The maximum temperature for the week ending April 8 was 81°, minimum, 33.5°, and greatest daily range 35°. Windy days and cold nights are interferring with the planting of cotton on the project. If this adverse weather continues as it did in 1920 there will probably be many cases of replantings.

The estimated increase in the cotton acreages on the project this year is about 10%. The varieties that will be grown are Lonestar, Mebane Triumph, Durango and Acala.

A ready market for alfalfa hay has developed during the last three weeks. Prices ranging around $22.50 per ton, baled, and on cars at Yuma, are now quoted for No. 1 hay. Growers are now harvesting their first cutting.

Station work performed during the week consisted of plowing and disking lands on C & D for rotation experiments; disking, harrowing and planting cotton on E-9, D-30-31 and A-24; removing surplus male date palms along roadways, and general hoeing and irrigating.

Mr. W. R. Meadows, in charge of Cotton Division, Bureau of Markets, was a station visitor April 6.

Demonstrations on Reclamation Projects.

Newlands.

During the week ending April 8, there were received 49 calls for assistance. Herd tests were run for five project dairymen.

An article of 1500 words was written on the history of the purebred cattle industry in Nevada for a special illustrated edition of a Reno paper. The article gave special emphasis to the purebred cattle industry on the Newlands project and the adaptability of the project to developing purebred cattle to the best advantage at low cost.

Every opportunity is taken by this office to advertise the advantages for dairying on the Newlands project.

Weather conditions on the project have been unfavorable for spring farm work. Freezing temperatures have been common throughout the week.

Shoshone.

During the week ending April 8, three farm visits were made and 51 requests for assistance were received.

As a result of a wind and snowstorm, travel was impractical most of the week. The subject requiring the most time was the selection and treatment of seed potatoes. By the end of the week the Farm Bureau pool of orders for corrosive sublimate amounted to 400 pounds, and the lowest price that had been quoted was 85¢ per pound at Powell.

One Farm Bureau meeting at Ralston was attended where a talk was made on "The Essentials of Marketing Organizations".

Miss Ellison, a member of the extension force of the Wyoming University, conducted millinery demonstrations Friday and Saturday at Powell, about 60 ladies attending.

Uncompahgre.

Practically all of the week ending April 8 was spent on work in connection with boys' and girls' clubs, considerable time having been spent in finding local leaders for various clubs. Miss Sheridan, State Club Leader, arrived Friday noon and Friday afternoon and Saturday afternoon were spent in the office with her in conference with as many local leaders as could be brought in. Less difficulty is being encountered than ever before in finding suitable leaders, the value of the work being more generally recognized.

Mr. Asbury, who has been employed by the Fair Association as full-time Secretary of the local fair, has made his headquarters in this office and is working in connection with the Project Agriculturist and County Agent. The arrangement promises to be very satisfactory as both offices are intimately associated with the fair.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX. April 22, 1922 No. 16

Western Irrigation Agriculture

Belle Fourche.

The following report was submitted by Mr. Aune under date of April 15:

The maximum temperature for January was 39, minimum -25, and total precipitation 1.31 inches. The maximum temperature for February was 49, minimum -27, and precipitation .38 inches. There were 16 days in January and the same in February below zero weather. While it was continuously cold during these two months there were no serious storms. The ground was covered with snow practically the entire winter.

The maximum temperature for March was 58, on the 22, and the minimum -11, on the 28. The total precipitation was .20 inch. The snow melted very slowly and, due to the dry condition of the ground from 1921, there was very little run off. Some field work was done on the 22, 23 and 24 of March. The last few days of the month were cold and stormy.

April to date has been rather cold and wet. Some disking was done on the 3rd, 4th and 5th but since that time no field work has been possible. On the 5th and 6th there was 1.96 inches of rain and this week .56 inch, making a total of 2.52 inches this month. Due to the wet season very little seeding has been done.

At the present time there is a surplus of labor on the project. The farmers are paying from $30.00 to $40.00 a month and board. Teamsters at the station are paid $75.00 and other labor $65.00. At the present time there are five men employed.

Conditions on the Project.

The farmers who had enough stock to feed up all the alfalfa and grain grown on their farms are in fairly good shape. Those feeding sheep this last winter cleared from $3.00 to $5.00 per head. The hogs also sold for good prices. Due to the continuously cold winter all the surplus hay has been disposed of and good hay is now selling for $8.00 to $10.00 in the stack. The dairy industry is gradually increasing and the tendency is along the line of more and better live stock.

There was a purebred sow sale at Whitewood in February and the average price for this sale was $62.00, the highest being $100.00. The average for this sale was as good as any in this State. There were two purebred Hereford bull sales, one at Whitewood and one at Bellefourche. The Whitewood sale was a combination sale of breeders of Herefords in the Black Hills. The highest sale was $215.00 and the average $122.00, about 20 head were sold. The sale at Bellefourche was from the Butte County Land and Cattle Company. This company is largely owned by Governor McGray of Indiana and animals sold were mostly shipped from his

Indiana farm. Twenty seven head were sold, the highest at $215.00 and the average $137.00. Animals offered at this sale were of very good quality. Governor McCray has bought about 3,000 acres of land six miles east of Bellefourche and will devote this land to the raising of purebred stock.

Newlands.

During the week ending April 15, some 4,000 cabbage plants were transplanted. There will be a similar amount of tomato plants set out as soon as the weather will permit. The greater number of these plants are for public disposal.

The plats in Y that were to receive an alum treatment were completed. Y 2 received alum at the rate of 40 tons to the acre. There was not enough ore to give the whole of Y 1 a similar treatment, therefore the alum was applied at the same rate per acre as far as it would go. In this way, a little over one-half of Y 1 on the west side received a treatment. The whole of the Y series, from one to eighteen inclusive, is now being harrowed in preparation for the sowing of grain and a little later alfalfa.

The cool weather has held back the growth of the alfalfa, but the indications at present are for warmer weather. As soon as the alfalfa has obtained sufficient growth, twenty young pigs will be turned into the pasture lots that have been fenced in preparation for our experiments.

On Saturday the last of the men who were employed in the alum work were discharged. They had been retained after the completion of the mining and hauling to crush and spread the ore at the station. The last of the ore was spread Saturday.

San Antonio.

During the two weeks period ending April 15, the maximum temperature recorded was 91, minimum 43, and greatest daily range 40. There was a total precipitation of 2.12 inches. Seven days were clear, two partly cloudy and five cloudy. With the abundant precipitation received during the past three weeks all vegetation is growing rapidly.

Corn in the rotation and tillage fields emerged to a spotted stand on most of the plats, due to non-uniformity of moisture in the seed bed at time of planting, and to the fact that the vitality of the seed had been weakened somewhat by carbon bisulphid fumigation. All skips in these plats were replanted with a hoe on April 3, 7, and 8.

Seed of two grass varieties, Vasey grass (Paspalum larranagai) and Bahia grass (P. notatum) was planted on D 3 immediately south of the Harding grass plat.

Lonestar cotton seed, produced on the experiment farm in 1921, was planted in thirty rotation and tillage plats and on C 3 April 11 and 12, respectively. The same stock of seed was used in planting, thinning and row-spacing tests on field C 5 for the office of Crop Acclimatization and Adaptation Investigations, April 13. A cotton variety test and a Lonestar-Acala comparison test were planted on the same field April 14 and 15, respectively. About one-half acre on the Herbst's plat was planted to Kekchi cotton for selection and breeding work, April 14. The seed bed in all cases was in excellent tilth and the moisture content was satisfactory.

All corn, milo, and sorghum plantings, and orchards A 1, A 3, B 3, and E 3 were cultivated. Orchards A 1, B 3, and E 3 were sprayed with lime sulphur. All rotation plats and farm roads were given a general weeding.

Mr. W. W. Ballard of the office of Crop Acclimatization and Adaptation Investigations arrived at the station April 13 to look after cotton plantings for that office. He returned to Greenville, Texas, April 16.

Scotts Bluff.

The week ending April 15 was very unfavorable for farm work. On the morning of the 9th, it commenced raining, later turning into snow which, during the night, developed into a blizzard lasting through the 10th. Another one developed on the 12th, but in a less degree. There was little damage done on the project as the storms were not accompanied with much cold and were of short duration. There was some damage among range stock above the canal as the storm was much worse there, there being more snow and colder weather. The fields are too wet for any kind of farm work except in the case of well drained fields, where some plowing is being done.

On the experiment farm, work consisted of sorting potatoes, cleaning grain, hauling manure, repairing machinery and equipment, building fences, and arranging hog houses in the hog pasture plats.

The maximum and minimum temperatures recorded were 55 on the 14th and 16 on the 10th with a precipitation of .73 inches.

Yuma.

The maximum temperature for the week ending April 15 was 82, minimum 31 and greatest daily range 41. The temperature of 31 occurred on the morning of the 10th. The records of the station covering the period 1910 to 1922 show that this temperature is the lowest ever recorded during the month of April.

The high winds and cold nights continue to make conditions very unfavorable for planting cotton. Some of the earlier plantings are now coming up but, as a whole, very little growth is being made.

The weather has not been so injurious to the alfalfa crop. Harvesting of the first cutting continues and, up to the end of the week, about twenty cars per day were being shipped out of Yuma. Early prices ranged from $20.00 to $22.50 per ton, baled, f.o.b. Yuma. A sudden drop occurred on the 15th and present quotations are uncertain.

Demonstrations on Reclamation Projects.

Newlands.

During the week ending April 15 considerable time was devoted to working up data on cost of producing alfalfa hay that has been collected in cooperation with six project farmers. This data was presented in an article to the two local papers.

An effort will be made to secure a larger volume of data of this nature next year. A second article was also contributed to the local papers summarizing the report of herd testing work for the month.

During the past week there was imported into the project a herd of fifty dairy heifers. The importation was made by a recent purchaser of a ranch in this project, the cattle being shipped from Turlock, California.

Assistance was rendered in arranging for a lease of one of the large ranches in the project, containing a section of irrigable land. This ranch was leased to a party from the eastern part of the state who will bring into the valley a herd of Holstein dairy cattle. Dairying seems to be the industry attracting most of the attention at this time. The growing of cantaloupes and potatoes is receiving more attention this year than during any previous year. It is expected that there will be at least four hundred acres of cantaloupes grown in the valley this year. A contract has been signed with an eastern firm for the sale of the entire output of cantaloupes at $1.00 per crate, in bulk, for firsts and 90¢ for seconds. During the week there were forty-six calls for assistance and visits were made to three farms.

Shoshone.

During the week ending April 15, fifty-three requests for assistance were received and twenty farm visits were made.

The treatment of seed potatoes continued to demand attention, a fact which signifies a more general interest in potato growing and, also, a more general realization of the importance of fighting diseases than has ever existed before. It has been estimated by several well-informed farmers that the potato acreage this year on the project will be not less than 2500 and perhaps 3000. A marketing committee consisting of representatives from all the community farm bureaus, together with the agent of Park County, met at the agriculturist's office Saturday evening to consider the advisability of forming a potato marketing association. The meeting revealed unanimous sentiment covering organization which will include pooling and the crop contract plan. The time was largely spent discussing details, the intention being to form an organization soon.

Three days were spent in the Frannie section. The assistance of Mr. Jump, Superintendent of irrigation, was available on Saturday when he demonstrated to new settlers what portion of their units, from the standpoints of labor and time, should be broken up first, and how to determine the direction and fall of field ditches. Mr. Jump had also addressed a meeting of farmers at Frannie Thursday evening on the general subject of irrigation.

Uncompahgre.

Two days of the week ending April 15 were spent with the state club leader, Miss Maude Sheridan, in meetings with local club leaders in Delta county. The club work in Delta county is progressing much better than ever before, the county fair association having appointed a county club leader who is giving considerable time to the development of the work. Local leaders are showing much interest and enthusiasm in the work. Parts of two days were spent in finding local leaders for clubs in Delta county and two club meetings were attended.

There has been considerable trouble among spring pigs this year, several breeders' having reported heavy losses from various causes which is going to make it difficult to secure enough pigs of desirable quality for the clubs. A visit to the state reformatory at Buena Vista is planned for the latter part of the month for the purpose of selecting purebred Duroc-Jersey pigs from the Reformatory herd. If these pigs prove desirable they will be a valuable help to the local clubs this year on account of the shortage of the supply by local breeders.

A number of poultry breeders were visited in Delta county this week for the purpose of securing cooperators in the keeping of farm poultry accounts. These breeders will keep egg records and also records of feed and other expenses. Convenient charts supplied by the State extension office of the agricultural college are furnished for this work.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX. April 29, 1922 No.17

Western Irrigation Agriculture

Belle Fourche.

The maximum temperature for the week ending April 22 was 78, minimum 19, and precipitation .04 inch.

During the week the planting of grain in the dry land and irrigated rotations was completed. Sugar beets were planted on the 21st and 22nd in the irrigated rotations.

The maximum temperature for the week ending April 29 was 68, minimum 32, and precipitation .30 inch. The total precipitation for April was 2.84 inches, the highest for the last fourteen years.

During the week wheat, oats, flax, barley and beets were planted in the maximum production and all the grain varieties in Field O. Fields Y and W in the northwest eighty were double disked and floated and seeding commenced on Field Y.

Some five hundred trees were planted in the northwest corner of field R, north of the ditch. The varieties planted were Elm, Honey Locust, Russian White Olive, Caragana and Jack Pine.

Some work was done on fencing alfalfa plats to be pastured in field A. The dry and irrigated orchards were pruned and some small fruits were set out in the garden. Crop conditions to date are very good.

Scottsbluff.

The weather during the week ending April 22 was very favorable for farm work of all kinds. Practically all of the ground has been prepared and seeding is well along. The irrigated plats, the fertilizer test plats, the time of plowing plats, and the beet plats, have been seeded. The preparation and seeding of all other plats is well under way.

The farrowing season is over in the hog department, with the exception of two or three sows that were not bred until rather late. There was rather a heavy loss among the litters of some of the gilts, some of them having as many as 12 pigs to the litter, and the pigs in these litters being very small.

The lambing season is also over and the ewes have been turned out on some grass pasture. There was a loss of 3 lambs out of a total of 27.

Articles have been prepared for the newspapers dealing with the best methods of preparing ground and seeding beets.

Mr. Cooley spent Monday and Tuesday at the farm and in visiting some of the farmers and business men regarding the placing of a dairy specialist at the experiment farm.

The maximum temperature for the week ending April 22 was 73, minimum 22, and precipitation 0.0.

Demonstrations on Reclamation Projects.

Newlands.

Considerable attention was devoted to herd testing work during the week ending April 22. Some help has been secured for this work. The herd tester from an adjoining county has been secured for three or four days to take care of the large number of samples that accumulated during the week. Fifteen or twenty herds will be tested through this assistance. During the past week two articles were contributed to the local papers on hay production cost and herd testing work. Some effort is being made now to interest dairymen in the Live Stock Health Protective Association.

A qualified veterinarian, who has had large experience in work with dairy cattle, has been induced to come into the project through the efforts of this office and it is hoped that he will decide to permanently locate here. If he does, an effort will be made to build up the proposed association for employing a full time veterinarian for the members of the association. This movement has been on foot for some time but because of the lack of a qualified veterinarian the organization has not been pushed. It is planned to build this organization gradually around the veterinarian providing he seems entirely satisfactory and desires to work through such an organization. There were 45 calls for assistance and visits were made to seven farms.

Shoshone.

During the week ending April 22, sixty-seven calls for assistance were received and seventeen farm visits were made.

A large part of the work during the week related to the selection of seed potatoes, the inoculation of alfalfa seed and the treatment of seed grain and potatoes. An address on "dairying" was given before the Powell agricultural club.

At a public sale on Wednesday about 100 grade Herefords brought the following prices: cows with calves, $45.00; yearling heifers, $40.00, and weaned calves under 1 year, $25.00.

Mr. Chase, state club leader, spent two days on the project assisting in getting organizations started. At present prospects for calf, sheep, pig and poultry clubs are good. The agriculturist made several trips to see the owners of large flocks and arrange for providing club members with lambs. One club at Frannie has been supplied with poultry.

Uncompahgre.

Milk tests were run during the week ending April 22 on six herds on which records are being kept with this office.

Several calls were made on fair work with Mr. Asbury, secretary of the fair. Work on the fair is progressing well, the premium list being nearly ready for publication.

Uncompahgre (continued).

Two days were spent in looking for pigs for club work. The pig crop is short this year, heavy losses being general, and it is going to be difficult to locate enough pigs for all club members. The pigs from the state reformatory will help make up the local shortage. Pigs are priced at $5.00 to $15.00 for purebred gilts. T. C. Anderson, a hog breeder, near Olathe is offering the choice of his pigs at $5.00. Mr. Anderson has 70 brood sows and would buy more. He raises feeder hogs and also buys wherever he can. He keep careful records with all branches of his business and shows a good profit on his hogs. He states that they pay an average of $35.00 per acre for alfalfa pasture. The profit on a recent shipment of 159 head amounted to $595.00.

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W E E K L Y B U L L E T I N

Of the Offices

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS.

Vol. XX. May 6, 1922 No. 18

Western Irrigation Agriculture

Newlands.

The warm weather during the period April 17 to May 6 left the soil ideal for seeding grain, alfalfa, and clover. Plat C6, 8, 10, 11, 12 and 13 were seeded to sweet clover; B5, 6, 7, 8, 9, and 10 to oats; and D3, D7, F1 and F13 to alfalfa. The four last named plats are part of the rotations on D and F. They were previously planted to wheat, but as they are to grow alfalfa next year the alfalfa is planted to same season as the grain. In this manner the wheat is used as a nurse crop for the new seeding.

The alum treatment on Y having been finished the plats 1 to 12, inclusive, were sown to barley and irrigated. About 12 days later alfalfa was seeded on the same plats.

Water was obtained for irrigation on two occasions during this period. April 24, C2 and 3, Y1 to 12, and B5 to 11 were irrigated. On the 27th water was applied to the following plats: G1 to 5, F12 to 16, F1 and 8, D3 and 7, C4, 6, 8, 9, 10, 11, 12 and 13.

One hundred Chinese elms, SPI 50588, were received on the 29th of April and were immediately set in the nursery.

Scottsbluff.

Weather conditions during the week ending April 29 were such that practically no farm work was accomplished. It started raining Monday night and has been raining or snowing most of the time since. The precipitation for the week was 1.68 inches. The temperature has ranged from a maximum of 72 to a minimum of 33.

The sweet clover and Ladino clover pastures have been seeded. The remainder of the time has been spent in general repair work, cleaning grain, and working at fencing.

The other three lots of the feeding lambs, together with a few old ewes and lambs, were shipped to Omaha Friday.

Throughout the country most of the spring grain has been seeded and the earlier seeding is coming up nicely. The ground is in splendid condition both for the crops that are in and those that will be put in. A few beets have been planted and as soon as it dries up sufficiently the balance will go in at once. There will be about 80 per cent of last year's acreage this season. At the present time there are about 50,000 acres signed up. The acreage last year was about 65,000.

Demonstrations on Reclamation Projects

Newlands.

During the week ending April 29, 53 calls for assistance were received and six farm visits were made. Weather conditions have been quite favorable during the period.

Much of the time was devoted to herd testing work. The month's testing was completed with 39 herds tested, including 412 cows. This is the largest number of herds tested during any one month by this office. Some assistance was secured the last week of the month. This help was largely used in securing the samples from large herds where milking machines were used. The man assisting in the work took samples night and morning and ran the samples in the laboratory during the day. The average production of all herds tested in April was 32.32 pounds of butterfat per cow.

A cheese demonstration was held on one of the large dairy farms. A number of neighboring women were in attendance and learned how to make Chedder cheese. The demonstration was given by Prof. Scott of the University of Nevada for the purpose of stimulating cheese making on the ranches.

Shoshone.

During the week ending April 29, 12 farm visits were made and 63 requests for assistance were received.

One day was spent in assisting the Farm Bureau Marketman check up the figures and accounts of the corrosive sublimate pool. About 600 pounds were distributed, the total saving over prices prevailing locally being about $570.

Two demonstrations of the treatment of alfalfa seed with inoculating material were conducted on farms, milk samples from 5 herds were collected, help was given toward a community sheep shearing plan, and the organization of the Powell pig club completed.

Almost an inch of rain fell on the 29th, an amount sufficient to sprout seed that had been previously planted.

Since April 22 electricity generated at the new power plant at the Shoshone dam has been available on the project.

The week closed with butterfat at 31 cents per pound at the Powell creamery and cream stations.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX. May 13, 1922 No. 19

Western Irrigation Agriculture

Huntley.

The maximum temperature for the week ending May 6 was 75, minimum 31 and precipitation .75 inch.

The season is opening very late and no seeding has as yet been done on the irrigated part of the farm, due to continuous rainy weather. During the latter part of the week it was possible to begin work in seed bed preparation. Seeding of grains on the dry land is nearly completed.

On the ligter soils of the project the seeding of grains and sugar beets is well advanced. The acreage of sugar beets will probably be about the same as in 1921, or about 3,000 acres. A large acreage will be seeded to wheat. Due to the low production of alfalfa in 1921 there has been a decided hay shortage on the project this spring and it has been necessary in some cases to have hay shipped in. This hay comes mainly from other sections of the state and from Wyoming.

Scottsbluff.

The average maximum temperature for the week was 69, the average minimum 39. The week ending May 6 has been cold and windy, but all farm work has progressed fairly well. Owing to the crusted condition of the ground due to the rains of the week before, all beet seeding was harrowed to break the crust and let the plants through. There were a few fields of beets planted very early, about April 1, which are up but to a very poor stand and will probably require reseeding. The beets at the station are just coming up. All other seeding is up nicely. A few of the fall seeded alfalfa plats will have to be reseeded as the grasshoppers killed it out last fall. The corn plats have been seeded and the planting of the potato plats will be completed next week, as will also the sweet clover pastures.

Four lots of ewes and lambs and one lot of fall-farrowed shotes have been placed on pasture. Thesweet clover and blue-grass pasture tests with the dairy cows have been started this week.

Yuma.

The maximum temperature for the week ending May 6 was 98, minimum 44, greatest daily range 48, and precipitation 0. The warmer weather, with less wind, during the last two weeks has been a great help to growing crops. Some of the early cotton plantings are now being thinned but in

Yuma (continued).

other cases poor stands were obtained and reseeding will be necessary.

Winter grains are now ripening. About 3,000 acres will be harvested consisting of about 70% Coast barley, 20% Early Baart wheat and 10% Sonora wheat.

With the exception of some late fall plantings all the first cutting of alfalfa on the project has been harvested. Considerable interest is being taken in the use of acid phosphate on alfalfa lands. One carload ordered this spring has been distributed by a local dealer to thirty alfalfa growers. An additional car is now ordered. Applications are being made at the rate of 200 to 300 pounds per acre of 16% acid phosphate. The reported increases in hay yields from the early treatments this spring range from 150 to 400 per cent.

The weather bureau has predicted a high river at Yuma this spring. The U. S. Reclamation Service is arranging all the necessary equipment to protect the project levees.

Station work performed during the week consisted of harvesting barley, pulling out date palm stumps, cultivating cotton A24, D30 and 31, and E9, hoeing roadways and borders, general irrigating, and cultivating.

Messrs. Swingle, Thackeray and Drummond were station visitors on April 21.

Mr. Roland McKee, Office of Forage Crop Investigations, visited the station May 3.

Demonstrations on Reclamation Projects.

Shoshone.

During the week ending May 6, 11 farm visits were made and 52 requests for assistance were received.

Because of the fact that many alfalfa growers have noticed a decreased yield when fields are reseeded to alfalfa after having been used for a year or more for some other crop, and also because a number of farmers are inoculating seed this spring it has been thought advisable to begin an examination of some of the fields that have been in alfalfa for more than a year as to yield and evidence of inoculation so that the findings may be compared with the plants resulting from seed inoculated this year. In several instances both inoculated seed and seed not inoculated are being sown on the same farm. Observations will be taken upon as many of these as can be found. In the course of the examinations already made a number of growers have been shown how to make intelligent observations themselves.

On Saturday assistance was given at a demonstration of the application of irrigation water on new land, at the home of Mr. Wilks, near Frannie. Mr. Jump, Superintendent of Irrigation, was present and the 16 men in attendance believe a number of the problems of irrigation will be more easily solved because of the demonstration.

As a logical step in the careful consideration being given to potato marketing by the County Farm Bureau (Park Co.), at a well attended meeting at Powell, potato growers selected a committee to propose a plan including constitution and bylaws for a marketing organization and instructed the committee to call growers together again when the plan is ready to submit.

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constitution and bylaws for a merchant organization and instructed the committee to call a meeting together again when the plan is ready to submit.

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W E E K L Y B U L L E T I N

Of the Offices

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX. May 20, 1922. No. 20

Western Irrigation Agriculture.

Belle Fourche.

Monday and Tuesday of the week ending May 13 corn was planted in the irrigated rotations and Field F. Very little field work was possible the remainder of the week, due to stormy weather. The highest wind velocity for the past fourteen years, and average of 31½ miles for 24 hours, was recorded on the 11th. The highest previous record was 26.8 miles. About sixty blocks on the facing of the Orman Dam was displaced during this storm.

The men were employed during the week building fences for hog pastures in fields A and O, planting trees, and treating and cutting seed potatoes.

Scottsbluff.

The week ending May 20 was cold and windy, but fairly favorable for the carrying on of field work, which is well along and the crops all looking very good. Beets are up and showing a satisfactory stand. Owing to the excessive wind, the ground is drying out and moisture will be needed before long. Water has been turned into the laterals of the Interstate project, but there are few users. Pastures and alfalfa can be irrigated but other crops are not advanced enough for irrigation.

Practically all seeding has been done on the station, with the exception of some time-of-seeding tests. During the past week an eleven-row windbreak along the east side of the dry land plat and south of the present windbreak has been set out.

Mr. H. O. Werner and Mr. McFarland, of the Horticultural Department at Lincoln, arrived on the 16th. and are supervising the planting of potatoes in the experimental work which is carried on under the direction of the Lincoln College of Agriculture.

All of the young dairy stock and one team of horses have been put on pasture. All of the hogs have been taken to the alfalfa pasture plats. About 15 sows are being bred for fall pigs.

Advices from the Reclamation office indicate that there will be a small increase in the potato acreage under the Interstate project, though the increase will not be as great as was first indicated.

Demonstrations on Reclamation Projects.

Newlands.

During the week ending May 6, there were received 31 calls for assistance and visits were made to 3 farms. One farmers' meeting was attended where the subject of a livestock protective association was discussed. Considerable interest was easily aroused on this subject. A competent veterinarian, however, to serve such an organization, seems very difficult to get in touch with and to induce to take up the work. Such an organization, however, seems worthy of being put into operation and an endeavor will be made to get in touch with a competent veterinary practioner, who can serve the organization.

There has been considerable interest shown in cow pastures on the project. This office has given considerable attention to the subject with the result that we are to have a very great increase in the number of trial pastures this summer. Several farms are planting Sudan grass for pastures and others are planning for mixed grass pastures.

During the week, an illustrated article was contributed to the local newspaper on Sudan grass for cow pasture. This article stimulated considerable interest and a number of inquiries resulted in several additional trial pastures of Sudan grass. Friday and Saturday of the week were spent at Reno, Nevada, for the purpose of consulting with the Washoe County Cow Testing Association and with the Dairy Department of the University of Nevada.

During the week ending May 13 some time was devoted to preparing the report of the herd testing work for April and reporting the same to the local newspaper. In this article attention was drawn to the very large increase in production of project herds as indicated by herd testing work performed in April, 1922, as compared with April, 1917. In April, 5 years ago, the herd testing association which wasthen operating, tested 545 cows. These cows were producing at the rate of 26.55 pounds of butterfat per cow for the month. For April 1922, 408 cows were tested by this office, representing 38 herds. The average production of all these cows was 32.32 pounds of butterfat for the month. If we considered the herds tested as being representative of the dairy cattle on the project, then we have an average increase of 5.77 pounds of butterfat per cow per month. After a very careful survey of the dairy situation now, as compared with five years ago, these figures seem justifiable.

The project continues to experience trouble with rabies. During the week one rancher had several horses bitten by a rabid coyote during the night. The horses had attacked the coyote and killed it, but not before they had been infected. This office was instrumental in facilitating the diagnosis of the rabies in the coyote head and helped to arrange for the treatment of the horses.

There is expected to be a considerable increase in corn planting this season. If the crops develop properly, the dairymen planting the corn will erect silos. It is the hope of this office to arouse interest in silos and summer pastures among the dairymen, to replace the straight alfalfa hay ration. The sentiment along this line is gradually increasing.

Calls for assistance were received from 58 farmers and visits were made to six ranches.

Shoshone.

During the week ending May 13, twelve farms visits were made and thirty-five requests for assistance were received.

A part of the regular monthly milk testing was done and several milk sheets completed. The work of finding lambs for club members continued, two visits to sheep camps being made and 8 animals placed on farms. One demonstration of alfalfa seed inoculation was conducted and considerable time given in assisting wool growers determine what plan should be followed in order to market the 1922 clip more satisfactorily than was done last season. This necessitated a trip to Cody where two buyers and several producers were interviewed. A meeting of the Park County Executive Committee of the Farm Bureau was attended while in Cody. The meeting was largely given over to a continuation of the discussion of marketing problems.

Uncompahgre.

The first part of the week ending April 29 was spent in the office; culling poultry, and locating pigs for club work. A flock of 120 white Leghorns was culled. This flock was one of the best found on the project. Only a few real culls were found, but the flock was reduced, being too large for the place.

The remainder of the week was spent enroute to Ft. Collins and at that place where several conferences were held with Extension workers. A cattle feeding demonstration marking the close of a feeding experiment in which sunflower silage was tested in comparison with corn silage, was attended. This test was very unfavorable to sunflower silage, steers fed on it making much poorer gains and less profit than those fed on a poor grade of corn silage. Sunflowers yielded about twice as high as corn but "corn silage produced gains on 11.5 per cent less silage, 11.7 per cent less dried molasses-beet pulp, 11.3 per cent less cottonseed cake, and 37 per cent less alfalfa than did sunflower silage." Sunflower silage cost $4.14 per ton on abasis of 20.3 tons per acre, and corn silage cost $4.45 per ton on a basis of 10.3 tons per acre, for labor of producing and harvesting.

The College pastures were inspected. These have been seeded from one to twelve years and have given fine results. The grass seed mixture recommended by the College as a result of the work done with these pastures is:

Orchard grass.....	15	pounds per acre
Smooth brome grass.....	15	" " "
Meadow fescue	10	" " "
Timothy	6	" " "
Yellow Sweet Clover	4	" " "

Rainy weather interferred with the attendance at the various demonstrations and programs, but there were about 400 men present. This is an annual event at the College.

Uncompahgre (continued)

Monday of the week ending May 6 was spent at Pueblo visiting hog breeders and cattle breeders with the Pueblo County Agent, looking up pigs and breeding cattle. Tuesday was spent at the State Reformatory at Buena Vista from where it was expected we could get a good number of pigs. Warden Capp having agreed, during the Montrose Farmer's conference in February, to furnish registered gilts at $5.00 each to club members on their notes, 47 club members signed these notes but due to heavy losses among the pigs at the Reformatory there is only one pig available from that source. Wednesday breeders at Grand Junction were visited and a few pigs were located. A Duroc-Jersey boar was also bought there for a local man.

A meeting of a committee on the Tuberculosis ordinance was attended in Montrose. The ordinance becomes effective May 6, at which time those who sell milk in Montrose are required to have license showing that their cows have been tested for tuberculosis and reactors removed. Most of the testing has been done, reactors having been found among seven herds to date.

Two club meetings were attended on Saturday.

Monday a trip was made to Hotchkiss where all the hog breeders known of were visited to find pigs for clubs, and on Saturday the Peach Valley club, of eight members, with their leader and parents of some of the boys were taken there to get their pigs. Thirteen pigs were selected from the breeding of Clements and Clements, eight of these being delivered to the Peach Valley club. These pigs were all sired by the same boar and are the best type and quality ever obtained for a club here. The other pigs were brought to Montrose county where one was left at Olathe and the others delivered to Sunnyside and Spring Creek. Several other calls were made during the week on club work.

The Duroc-Jersey boar bought at Grand Junction last week for P.I. Lewis arrived at Montrose on Thursday. Mr. Lewis was much pleased with the hog which is one of the best individuals ever brought on the project. The price paid was $50.00 and the express from Grand Junction, 65 miles, was $12.74 or more than $2.00 per cwt.

Milk tests were run for the Hortilla Dairy which retails milk in Montrose, with a guaranteed test of butterfat of 4%, which was just average test of the herd for the two milkings tested. One cow in this herd is milking up to 88 pounds per day, testing 3%. This herd was recently tested for tuberculosis and one of the best cows condemned.

Quite a snow fell on Wednesday of this week and the temperature dropped to freezing or below for three nights. Considerable alarm was felt for the fruit which is just at a critical stage, but it is thought that no harm was done. Prospects were never better here for a fruit crop than at the present time.

Sun River.

The greater part of the week ending May 13 was spent at the Salt Lake City office and enroute from there to the Sun River irrigation project.

One day was spent with the Reclamation Service at Great Falls, Mont., discussing plans for the seasons work with officials. It was thought that more stress should be placed on the proper use of water and that

Sun River (continued).

farmers be placed on their own initiative in preparing their lateral systems. This to be governed, of course, by the previous experience of the water user.

Water will be delivered on land under the Beale division this year for the first time. These people have had no experience with irrigation and their problem will be getting their laterals on the land. It also appears that the acreage under the Greensfield canal will greatly exceed that farmed during previous years.

This section reports a very severe winter and a cold late spring. Livestock men claim that more feed has been required to winter sheep and cattle than any previous winter in the history of this country. This has made it possible for farmers on the Fort Shaw Division to dispose of their hay during March and April at a fair price.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX. May 27, 1922 No. 21

Western Irrigation Agriculture

Huntley.

The maximum temperature for the week ending May 20 was 75, minimum 35 and precipitation .09 inch.

Weather conditions were favorable for field work during most of the week. Seeding of small grains, alfalfa, flax, and sugar beets was completed in the irrigated rotations.

All of field A-III was seeded to the local pasture mixture with nurse crop of barley. Field A-I was seeded to oats and sweet clover.

Dairy cows were started on pasture in field L-III and A-II on May 18. These pastures are in excellent condition and could have been used earlier but for stormy weather.

The work of spring planting is progressing rather slowly throughout the valley because of stormy, cool weather.

Irrigated Rotations

Very little field work was done on the rotations during the week of May 13. Some disking was done the first of the week but rain on the night of May 9 and 10 stopped all field work for the week.

The alfalfa is making excellent growth considering the cool weather. Fencing of the third year alfalfa for "hogging off" in rotation 67 and 69 was delayed by the rain. Work on a new drainage for field K was started on Friday.

Work on the rotations progressed rapidly during the week of May 20. The wheat, sugar beets, alfalfa, oats and part of the potatoes were planted. The ground is in good shape and all of the plats have an excellent seed bed.

The fences around the third year alfalfa in rotation 67 and 69 were finished and hogs were put on pasture May 18. Five fall pigs were put in each rotation.

Newlands.

During the three-week period ending May 20, most of the unfinished planting in the garden was completed. The crops planted were muskmelons, watermelons, sweet corn, cucumbers, squash, pumpkins, and beans.

Several experiments were started in the field. The potato experiment consisted of several tests. Seeds were planted cut and whole. The cut pieces were from potatoes cut endwise and crosswise; medium and small pieces; and stem and seed end. The whole potatoes were planted according to size.

Newlands (continued).

These were rated as average, medium, and small. An experiment in distance-of-planting in furrows was also started.

From the results of previous experiments, four potatoes were chosen for the variety test for this year. The varieties chosen were Netted Gem, Burbank, Producer, and Pride of Multnomah. Two rows each of these varieties were planted with suitable check rows.

The corn variety test consists of two, 180-foot rows of each of the following varieties: White Flint, Oregon White Dent, Early Yellow Dent, Minnesota No. 13 (grown locally); Minnesota No. 13 (purchased seed); Squaw (local); Wimples Yellow Dent; Riverview Special (purchased), and Riverview Special (local). Starting with the first row and every third row thereafter Medium Early Fodder corn was used as a check.

A portion of plats H8, 9, and 10 was seeded to flax varieties received from the Office of Cereal Investigations. The varieties being grown are N. D. R. 114, Primost, Reserve, Damont, Minn. 175-1, Minn. 91-1, Selected CI 19-6, Kazan Selected, La Platta, Smyrna Selected, Matana Selected, and Williston Golden. Besides this variety test, nearly all of plat H10 is seeded to Flax No. C.I. 14.

That portion of these three plats not occupied with the flax experiment was planted to seven rows each of Early Amber Sorghum, Kafir corn, and milo.

Some of the grass plats on A3 that were planted to annuals last year and others that were winter-killed, were reseeded as follows:

No. 4. Annual sweet clover
No. 6. Hubam clover (2 rows)
and Biennial sweet clover.
No. 7. White clover.
No. 9. English Rye grass
No. 13. Red clover.
No. 15. Burbank sudan sorghum (2 rows)
Burbank sunflower (2 rows)
No. 19. Alsike clover.
No. 23. Canadian blue grass
No. 24. Mammoth clover.

San Antonio.

Under date of May 20; Mr. Ratliffe reported on conditions in the San Antonio region as follows:

" After having had an unusually dry fall and winter season, the San Antonio region is now experiencing an extremely wet spring. Droughty conditions prevailed until March 24, on which date a precipitation of .46 inch occurred. This was followed on March 28 and 29 by a rain of 3.76 inches. During the month of April precipitation occurred on ten different days for a total of 7.12 inches. This is the greatest April precipitation recorded at this station during the past fourteen years, except one year, 9.05 inches having been recorded in 1915. The average rainfall for April during this period is 3.56 inches. A total precipitation of 2.35 inches were recorded for the first 13 days of May.

San Antonio (continued).

"Pastures are in excellent condition and all stock ponds are full to over-flowing. Meadows have made good growth, but the first cutting from them has, in many cases, been badly damaged or entirely destroyed by being rained on after having been cut. Oats, cut for hay, at the experiment farm were on the ground eighteen days and received 6.68 inches of rain before they could be hauled from the field.

"Corn has made satisfactory growth; however, strong winds have accompanied the rain during the past two weeks and from 5 to 15 per cent of the stalks in various fields have been broken off. Both hay and grain sorghums have made rapid growth. Continued cloudy, cool weather has, however, caused the lower portion of sorghum heads now emerging to be sterile. Cloudy weather has also been favorable for aphids and sorghum midge, small numbers of the latter having been found in the fields on the experiment farm as early as May 15. The first adults of this insect emerged from hibernation in the Johnson grass along the east side of the farm as early as April 18.

"Cotton has suffered from the prolonged wet weather and many seedlings have died from anthracnose. Aphids are also present in large numbers and have done some damage to seed leaves. Growth of the cotton has been slow while the excessive moisture has been favorable to weed growth and prevented necessary cultivation. Some fields which are badly grown up to weeds will be abandoned.

"The maximum temperature for the four-week period ending May 13 was 93 on April 17, minimum 53 on April 28, greatest daily range 33 on April 17, and precipitation 7.14 inches. There were four clear days, eleven partly cloudy, and thirteen cloudy days.

"Station work consisted of thinning all corn and milo plantings; cultivating all row crops as soon after rains as possible to get into the fields; spraying orchards; harvesting oats; both for hay and grain; miscellaneous weeding and chopping Johnson grass; painting orchard and field "marker" stakes; and miscellaneous repair and upkeep work on machinery, buildings and grounds.

"Mr. Peter Bissett, of the Office of Foreign Seed and Plant Introduction, visited the station for a few hours on Sunday, April 16.

Yuma.

The maximum temperature for the week ending May 20 was 102, minimum 50, greatest daily range 48, precipitation 0.

With the exception of a few windy nights, the weather during the past week was about normal.

The thinning of cotton, which is now well under way, and the harvesting of winter grains, are the prominent activities on the project at the present time. Land is also being prepared for grain sorghums.

Considerable damage was caused in the Palo Verde Valley, located 60 miles north of Yuma on the Colorado River, by a break in the levee. It is reported that 7,000 acres have been inundated. The present discharge of the river at Yuma is 73,000 second feet.

Station work performed during the week consisted of harvesting barley, wheat and oat varieties; planting cowpeas, B-11 and B-12; leveling rotation plats, D-1 to D-17; hoeing and shoveling ditches; general irrigating and cultivation.

Yuma (continued).

Prof. W. W. Mackie, of the Agronomy Department, University of California, and Superintendent L. G. Goar, of the University of California Experiment Station at Meloland, Imperial Valley, visited the station on May 15. Prof. J. J. Thornber, Dean of Agriculture and Director of the Experiment Stations, University of Arizona, was a station visitor on May 25.

Demonstrations on Reclamation Projects.

Shoshone.

During the week ending May 20, 29 farm visits were made and 31 requests for assistance were received.

Five days were given almost wholly to the task of securing lambs for sheep club members from sheep camps on the range where lambing is in progress, and distributing them with instructions as to care and feed. Saturday was spent chiefly in considering with project sheep raisers a plan for disposing of the spring wool clip. It was decided to request buyers to visit 4 or 5 of the farms where the largest quantities of wool are - wool which represents the grades of all - and make prices for the whole pool by grades, after which, the question of acceptance will be considered.

Uncompahgre.

Aside from milk tests made for 3 men, the entire week ending May 20 has been devoted to pig clubs, looking for pigs and taking them to members who have no way to get them. There are so few suitable pigs in the valley and the enrollment is so much larger than ever before, that it is going to be hard to supply all members. A trip was made to Grand Junction where T. G. Twyman who has one of the largest and best herds of Poland-Chinas in the state, was called on. Only 5 gilts of proper age and type were secured there, though two younger gilts and a boar were also taken. Two club boys furnished 3 good gilts and can furnish 2 or 3 more. Thirty pigs are yet needed to supply first year members.

Sun River.

Weather conditions during the week ending May 20 have been unsettled. Temperatures were generally and a strong north wind prevailed. A precipitation of .45 inch was recorded at Fairfield.

The greater part of spring planting is completed. Extra effort is being put forth to finishing up the remaining work. It is discouraging to note the type of farming that is being done on the Sun River project this spring. At least eighty per cent of the spring crops have been seeded on the stubble. This is partly due to financial conditions and partly to the lack of effort.

Sun River (continued).

Field work with farmers consisted of helping with leveling land; securing potato seed for the boys' and girl's potato club; assisting in planning irrigation ditches, and assisting with the planting of alfalfa. Thursday afternoon a meeting of the potato club was held at the Bleeker school house. Twenty-five members were enrolled. The county agent attended and gave assistance in securing certified seed. The organization will meet again Wednesday, at which time a demonstration on the treatment of potato seed will be given.

Due to the late spring and frequent showers during the last two or three weeks, there is an abundance of moisture in the ground. Settlers think that very little water will be needed this season and, consequently, they are slow about signing for water, or making preparations to irrigate.

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W E E K L Y B U L L E T I N

Of the Offices of

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Western Irrigation Agriculture.

Huntley.

The maximum temperature for the week ending May 27 was 94, minimum 40, and precipitation .83 inch.

Rainfall since January 1 has amounted to 8.37 inches, or 1.50 inches more than the normal precipitation. Frequent showers have occurred during the past month and field work was slow and difficult on the heavy lands of the project. The seeding of sugar beets is only about 75 per cent completed.

With the seeding of corn and potatoes in the rotations, the seeding work on field K and L-IV was completed. Two varieties of potatoes were planted in 16, one-twentieth acre plats in L-I-13 to 16, inclusive, to be used in an irrigation experiment. Four varieties of corn for silage were seeded in field L-I-1 to 12 and L-II-1 to 12, inclusive. Potatoes in a variety test were planted in field B-VII and corn varieties were seeded in field B-V. Sunflowers were seeded in field L-II-17 to 20, to be used in an irrigation experiment.

Rain occurred on the 26th and again interrupted field work. About three days work remains to complete the planting of corn in the dry land rotations and in field O, when the season's plantings will be finished.

Irrigated Rotations.

The remainder of the crops in the irrigated rotations were planted this week. Crops planted last week, particularly oats, wheat and flax are showing up nicely on all of the plats. Alfalfa is making very rapid growth and may have suffered for water had not a rain of .6 inch occurred Friday afternoon.

Weeds are more numerous than usual this spring, but are being controlled to some extent by disking the roads and headlands.

Part of the week was spent in putting in concrete checks in the ditches in field K. The work of changing the drain ditch for field K is still going on as rapidly as possible.

Scottsbluff.

The week ending May 27 was very favorable for the growth of all crops. The first two days of the week there were light showers aggregating .42 inch followed by good growing weather, putting all crops in splendid condition. Friday night a heavy rain fell. At the farm .96 inch was recorded and the

Scottsbluff (continued).

rain was general over the entire project. The precipitation ranged from .60 inch at the east end of the project to more than 1 inch at the west end. It was accompanied by hail in a few localities but no damage was done to any crops. The temperature ranged from 44 degrees on the 22nd to 81 on the 25th.

The work on the farm consisted of plowing and preparing the land and planting potatoes, reseeding some of the fall-seeded alfalfa plats that were destroyed by grasshoppers, and giving the beets the first cultivation.

On Wednesday, a special train from Lincoln carrying about 600 beet laborers arrived in the valley and the laborers have been distributed throughout the beet growing district. Thinning will begin as soon as the ground dries enough to permit work in the fields.

Saturday a trip was made to Kimball with Messrs. McFarland and Werner, of the State Horticultural Department, to inspect cooperative tests with potatoes being conducted by these men.

Demonstrations on Reclamation Projects.

Newlands.

On Wednesday of the week ending May 20, Mr. Cooley arrived on the project and most of the remainder of the week was spent in going over the work of the office and visiting points of interest on the project. On Friday a trip was made with Mr. Cooley and Mr. Headley to Reno, Nevada, to visit members of the faculty of the University of Nevada.

During the week, two cases of rabies were reported on the project. Frequent recurrence of rabies here indicates that there must be a very general outbreak in this part of the country. In one of the last cases a small child was bitten by a rabid cat which had been in the neighborhood a week but had not aroused suspicion.

The subject of pasture is receiving a great deal of attention just now among the farmers of the project. Temporary pastures of sudan grass and rye and sweet clover are being very generally planted this spring. This subject will receive an increased amount of attention from this office from now on as it is considered of much importance in the development of dairyingon the project.

Shoshone.

During the week ending May 27, seventeen farm visits were made and 41 requests for assistance were received.

The work of supplying members of the boys' and girls' clubs with lambs was continued, twenty-five lambs being secured and distributed.

Shoshone (continued).

Two buyers submitted offers for the wool on the project, the better offer being 31½ cents for fine wool and 30 cents for mixed. Letters giving information about market prices and conditions were written to twenty wool producers. On Saturday, the majority decided to accept the above prices. The terms of the contract are that one-third of the purchase price shall be paid in advance without interest and the remainder on the date of delivery at Powell on or before July 1, 1922. The whole amount of wool involved is about 12,000 pounds. Had there been a full carload a better price could have been obtained.

Uncompahgre.

The second annual Jersey cattle show of the Mesa county Jersey Club was held during the week ending May 27. The writer judged the first show a year ago when 46 registered Jerseys were entered and was invited to do so again this year. The invitation was accepted with the suggestion that it would be much better for all concerned if a different judge could be secured, which was not done. Fifty entries were made this year, quality being very high. A greater number of exhibits was expected but, on account of rush of farm work, several breeders failed to appear. There are over 100 breeders of purebred Jersey cattle in Mesa county, most of them keeping only a few cows in connection with orchards. Official test work is being taken up in the county and two state records have been broken in the past year.

One dairy herd was tested for butterfat this week. All the rest of the time was spent in locating pigs for club members, 27 calls having been made in this connection. Thirteen pigs were delivered to members and fourteen more are needed to supply all who have requested them.

Sun River.

During the week ending May 27, nine farm visits were made and eleven office calls were received. Lateral systems were planned on 600 acres of land and one meeting was attended.

Weather conditions have been unsettled. Hot winds occurred May 24 and 25. Most of the moisture was taken from the top soil and some damage was caused to the young grain by blowing sand. Rainy weather occurred during the last two days of the week, one inch of moisture having been recorded at the Fairfield station. The alfalfa and grain crops are looking good. Up to this time the "pale western cutworm" which did so much damage in the two previous years has not appeared.

Farmers on the Beele Division are particularly anxious to get advice about preparing their ground for irrigation and the use of water.

QUALITY OF THE IRRIGATION WATER IN THE VICINITY OF SACATON, ARIZONA.

The following discussion is based largely on an examination of the underground waters in the vicinity of Sacaton, Arizona, made by Mr. J. F. Breazeale. There has been, from time to time, some question as to the effect of these waters on the development of alkali conditions and it has been noted that there is a marked difference in the quality of the underground water of the Gila Valley and that of the Santa Cruz, as shown at Casa Grande, about 16 miles south of Sacaton. It has been observed, also, that the water obtained from two wells on the Seed Farm, about a mile south of Sacaton, is very different in quality than that obtained on the Sacaton station. It was with a view of getting some light on these conditions that the present study has been made.

The quality of the water of the Gila river (surface flow), as reported by Forbes in Bulletin 44 of the Arizona Experiment Station in a series of samples collected in 1900, is shown in Table I.

Table I.- Gila River Water, 1900. Based on Arizona Bulletin 44 (Forbes)

Date.	Total Solids, ppm.	Ca & Mg as % T. S.	Cl as % T.S.	SO_4 as % T.S.	CO_3 as % T.S.
1899-1900 Nov. 20 - Jan. 18 Low water	1168	6.7	35	13	5.6
1900 Feb. 1 - March 7 Low water	1136	8.3	34	14	6.1
1900 August 1 - 14 Flood	542	15.8	17	17	...
1900 August 15 - 28 Low water	925	10.8	..	14	...
1900 Sept. 1 - 28 Flood	471	14.6	12	20	23.5
1900 Sept. 29 - Nov. 5 Low water	1085	11.0	34	13	11.7
Mean	890				
As per cent total salts		12.6	30	17	

Quality of the Irrigation Water in the Vicinity of Sacaton, Arizona, continued.

This table shows that, except during the flashy summer floods, the Gila water carries about 1,000 parts per million of salts, of which 12 to 13 per cent is calcium and magnesium, 30 per cent is chlorine, and 17 per cent sulphate. The calcium-soda ratio of this water averages about 30 : 70.

The water of the wells at Sacaton were examined by Forbes in 1903 and reported by W. T. Lee in his paper on the underground waters of Gila Valley, Arizona, W-S.and I. paper No. 104. The analysis reported in this paper is incomplete but it shows the total salts as 680 parts per million, of which chlorine constitutes 26 per cent. The Sacaton irrigation water was analyzed by Breazeale in December, 1920, and again in May, 1922. The results of these three analyses are shown in Table II, which gives the total salts in parts per million and the percentages of the more important constituents in terms of the total salts.

Table II.- The Sacaton Wells. Quality of water in 1903, 1920 and 1922.

	Total Solids, ppm.	Ca as % T.S.	Cl as % T.S.	SO_4 as % T. S.	CO_3 as % T.S.
1903. Analysis by Forbes & Skinner Reported by W. T. Lee	680		26		
1920 - December Breazeale	1670	9.3	36	15	11
1922 - May. Breazeale	1776	7.7	33	16	12.5

In a recent examination (May, 1922), Mr. Breazeale sampled thirty wells. Twelve of these are located on the north side of the Gila river, well down in the valley trough; nine of the twelve are used for irrigating reservation lands in the valley bottom, the other three are domestic wells. The analyses of these waters from the north side of the Gila are shown in Table III.

Quality of the Irrigation Water in the Vicinity of Sacaton, Arizona, continued.

Table III.- Wells on north side of Gila river. Sampled May 1922. Analyses by Breazeale. Stated in parts per million.

Number.	Total Solids	Calcium	CO_3	HCO_3	Cl	SO_4	NO_3
1. Pump No. 0 160 feet	800	124	8	300	280	164	tr.
2. Pump No. 1 160 feet	940	146	0	300	336	191	tr.
3. Pump No. 2 160 feet	1400	182	0	300	560	285	tr.
4. Pump No. 3 160 feet	1288	175	0	300	420	213	tr.
5. Pump No. 4 160 feet	1100	182	0	300	434	238	tr.
6. Pump No. 5 160 feet	1280	155	0	300	455	218	tr.
7. Pump No. 6 160 feet	1192	172	0	300	455	235	tr.
8. Pump No. 7 160 feet	1420	176	0	300	455	266	tr.
9. Pump No. 8 160 feet	1420	168	0	300	455	268	3
10. Judge Juan 40 feet	1296	164	0	300	469	308	2
11. Santare 40 feet	1436	219	6	300	490	240	2
12. Twin Buttes 30 feet	2184	176	tr.	300	875	247	2
Mean	1314	170	1	300	436	230	1
As per cent total salts		13	...	11.4	33	17.5	...

Quality of the Irrigation Water in the Vicinity of Sacaton, Arizona, continued.

This table shows the total salts, calcium, carbonates, bicarbonates, chlorine, sulphate and nitrate. The water of these wells is substantially uniform in quality with a mean of 1,314 parts per million total salts, of which 13% is calcium, 11.4% is carbonates[1], 33% chlorine, and 17.5% sulphate.

[1] In computing the percentage of carbonates in these tables, the bicarbonates are divided by two.

Of the wells sampled on the south side of the Gila river, nine are located in the valley trough, not far from the river bed. This series of wells extends from Pinkley's store, about 10 miles east of Sacaton, to Casa Blanca, about 11 miles west of Sacaton. The analyses of the waters from these nines wells is shown in Table IV.

Table IV.- Wells on south side of Gila, in valley trough. Sampled May, 1922. Analyses by Breazeale. Stated in parts per million.

	Total Solids	Calcium	CO_3	HCO_3	Cl	SO_4	NO_3
1. Pinkley 23 feet	1172	192	tr.	300	385	165	0
2. Four Mile Post 23 feet	2284	102	18	420	805	446	2
3. Four Mile Post 160 feet	1080	164	6	228	385	196	tr.
4. Sacaton 160 feet	1776	126	0	444	595	287	8
5. Colony 1. 98 feet	2100	189	0	480	770	287	2
6. Colony 2. 98 feet	3380	298	0	612	1400	612	tr.
7. Sweetwater 30 feet	830	120	0	336	238	133	...
8. Babesha 30 feet	1500	143	12	360	490	239	tr.
9. Casa Blanca 30 feet	1100	111	0	264	378	182	tr.
Mean	1690	160	3	383	606	283	1
As per cent total salts		9.5		11.3	36	16.8	...

Quality of the Irrigation Water in the Vicinity of Sacaton, Arizona, continued.

These waters are all substantially alike; the average salt content is 1690 parts per million, of which 9.5% is calcium, 11.3% carbonates, 36% chlorine, and 16.8% sulphate.

The other nine wells are also south of the Gila river but represent a different ground-water condition. The results of these analyses are shown in Table V.

Table V.- Wells south of the Gila and in the Santa Cruz. Sampled May, 1922. Analyses by Breazeale. Stated in parts per million.

	Total Solids	Calcium	CO_3	HCO_3	Cl	SO_4	NO_3
1. Jaynes 44 feet	1190	181	tr.	240	378	250	16
2. Strough	650	102	tr.	240	175	109	24
3. Preston 20 feet	240	70	tr.	240	35	73	0
4. Seed Farm Irrigation	356	56	0	192	56	99	1
5. Seed Farm Domestic	280	43	0	204	42	91	2
6. Tuckers 30 feet	512	80	12	408	126	140	2
7. Casa Grande 150 feet	496	87	0	168	102	140	12
8. Desert - Santa Cruz wash, 45 feet	588	34	6	240	35	164	0
9. Toland - Santa Cruz 40 feet	316	15	6	144	35	66	12
Mean	514	74	2	231	109	126	8
As per cent total salts		14.4	...	22.5	21.2	24.5	...
Mean (Except 1, 2, and 6)	380						
As per cent total salts (Except 1, 2 and 6)		13.4	...	26.3	13.4	27.8	...

Quality of the Irrigation Water in the vicinity of Sacaton, Arizona, continued

Three of these wells, Nos. 1, 2 and 6, are situated very little above the valley trough; three others, Nos. 7, 8 and 9, are situated in the Santa Cruz basin. These waters are all much lower in salt content than those situated in the valley trough either north or south of the river. They also show a very different proportion of their important constituents. The mean salt content for the nine wells is 514 parts per million, of which 14.4% is calcium, 22.5% carbonates, 21.2% chlorine, and 24.5% sulphate. If we exclude from this series Nos. 1, 2 and 6, which occupy a doubtful or intermediate position, we have for the remaining six wells a mean salt content of 380 parts per million, of which 13.4% is calcium, 26.3% is carbonates, 13.4% chlorine, and 27.8 sulphate.

It will be observed that the waters of the trough of the Gila valley carry about twice as much chlorine as sulphate while the waters of the Santa Cruz basin and of the two wells at the Seed Farm carry about twice as much sulphate as chlorine. From this it seems altogether probable that the Seed Farm water is derived largely from the Santa Cruz underflow rather than from the Gila underflow and it would appear also that this Santa Cruz underflow modifies materially the quality of the water in other wells on the Gila side of the divide, such as Nos. 1, 2, 3 and 6.

There appears, also, to be a significant point in the calcium content of these three series of wells. The wells on the north side of the Gila, except possibly No. 12 in Table III, are all situated above the irrigated land and show a calcium content of 13% of the total salts, approximately the same as that of the surface flow of the Gila river. The wells on the south side of the Gila river in the valley trough are so situated as to derive a part of their water supply from the seepage of irrigated land. This condition is apparently reflected in the lower proportion of calcium (9.5). The other wells on the south side of the river, including those in the Santa Cruz basin, show a proportion of calcium approximately the same as the wells on the north side of the river and as the surface flow of the river itself, and would indicate that the water of these wells is probably not influenced by return or seepage flow.

C.S.S.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
And
DEMONSTRATIONS ON RECLAMATION PROJECTS

Vol. XX. June 10, 1922. No.23

Western Irrigation Agriculture.

Scottsbluff.

The week ending June 3 was cold and wet and above the average for this time of the season in wind movement. Very little work in the crop rotation plats has been done as the ground has been too wet for cultivation. All of the alfalfa and the various pasture plats were irrigated during the week. This, with the precipitation of 1.55 inches, will put them in excellent condition for plant growth.

One pure bred cow and one pure bred heifer was received from the State Farm at Lincoln under purchase and one pure bred bull was loaned to the station by the dairy husbandry department at Lincoln.

Conditions on the project are very favorable for a prosperous year. The moisture conditions are excellent and with a continuous water supply from the Interstate canal the farmers under that canal should come through the year in excellent condition.

Mr. D. H. Propps arrived at the station on June 1, and has assumed the management of the dairy and live stock work.

Yuma.

The maximum temperature for the week ending June 3 was 107, minimum 52, greatest daily range 48, and precipitation 0.0.

Very favorable weather conditions have prevailed during the last two weeks. Alfalfa on the project is now in full bloom with present indications very favorable for a good setting of seed pods. Cotton is making rapid growth. The stands secured this year are below the average due to adverse weather conditions at planting time. Cotton thinning on the project is about completed. The average price paid this year ranged from $1.00 to $2.00 per acre.

A grasshopper invasion in the lower valley is reported to have damaged approximately 400 acres of grain and alfalfa. Defensive measures were taken by county officials and applications of poisoned bran mash were effective.

Colorado river conditions are threatening but not serious. The discharge at present at Yuma is 97,000 second-feet with a gauge reading of 26 feet.

Crops on the station are coming along in good shape. The cotton plats have all been thinned and the third cutting of alfalfa is now ready for harvesting. The work of releveling the plats on C and D for the rotations is about completed. Thirty-four of these plats will be irrigated Monday and planted to cowpeas the following week. Other station work performed during the week consisted of harvesting wheat varieties; plowing barley, oat and wheat stubble plats; cutting oats for hay, plats D18 to D21, inclusive and general irrigating, cultivating and hoeing.

Demonstrations on Reclamation Projects.

Milk River.

During the week ending June 3, the Dodson division of the project was visited in company with the Supervisor of Irrigation. A circular letter was mailed to water users over the entire project to create more interest among the farmers in installing the sort of irrigation plan best suited to the individual farm, as well as to provide a systematic program of work for the field assistant.

Soil samples of heavy gumbo were collected in which an alfalfa germination test is being conducted. The farm of Charles Tanner, below Hinsdale, Montana was visited by request. Mr. Tanner has 120 acres of excellent alfalfa. He wants alfalfa seed. The hay crop is secondary. He wasadvised, however, that the first crop already near the cutting stage, is ready to make good hay but entirely too leafy and rank for a seed crop. The crop is to be made into hay, therefore, with a view to getting seed from the second crop. Matt Elias's farm was visited. Methods were suggested for securing a better stand of alfalfa on gumbo soil and plans for an irrigation system to be surveyed later were discussed. Mr. Sheele's farm, lying under a canal lateral, is showing harmful spread of alkali due to seepage from the canal. A plan of draining this seepage was outlined to the satisfaction of Mr. Sheele.

Newlands.

Weather conditions during the week ending May 27 were very trying on the cantaloupe growers as well as the family orchards of the project. Frosts and freezing weather made it necessary for farmers with orchards and cantaloupe acreage to irrigate heavily and smudge in order to protect their crops. In a great many cases, considerable damage was done. Much replanting of cantaloupe land has been found necessary.

During the week a party from Oregon made a trip into the project to arrange for the importation of 100 head of young dairy cattle from the vicinity of Albany, Oregon, to this project. These cattle will be driven overland. The distance across country will be about 300 miles and will require about one month to complete the trip. These cattle will be developed on the project and some of them offered for sale. If there is good demand for the cattle new importations will be made next year from the same districts. This office has been in consultation with Dr. Lynsey, who is making the importation, for some time, and it is hoped that a high grade of cattle will be brought in through this means.

On Saturday of the past week a meeting was attended in the Stillwater district where the subject of herd testing and pastures were discussed. Much interest was shown in each of these subjects. This district has showed renewed interest in dairying this year.

Newlands, continued

Much of the time during the week ending June 3 was devoted to closing up the herd testing work for the month. Considerable increased interest has been shown in this work and a good deal of attention will be devoted to it throughout the month of June. One of the objects just now in devoting so much time to herd record work is to secure a survey of the general production of the cows on the project. Approximately 750 cows were tested during the month, representing sixty herds.

On Sunday of the past week an outbreak of blackhead in turkeys was diagnosed on one of the ranches. There were 500 little turkeys on the ranch at the beginning and in spite of diligent efforts toward controling this disease among the flock of turkeys, there were only seventy five left by the end of the week. This is the first outbreak reported for the season. Because of the large numbers of turkeys on the project this year, there has been great fear that an outbreak of blackhead might show up. In 1917 the turkey industry of the project suffered heavy losses from blackhead, and not until this year has the industry recovered and reached its former importance. It will, no doubt, require time and close attention on the part of this office to hold in check the ravages of this disease now that it has shown itself on the project.

During the week the question of establishing two new dairy herds on two ranches was discussed and plans were made for locating dairy herds either here in the valley or from outside sources.

Shoshone.

During the week ending June 3, thirteen farm visits were made and 26 requests for assistance were received.

At the request of several alfalfa growers, visits were made to farms to inspect fields for evidence of inoculation. One day was spent in conference with five potato growers who drew up a tentative constitution and by-laws for a marketing organization to include the Powell, Ralston, and Garland communities.

Considerable difficulty has been experienced this spring by settlers in this section who were irrigating for the first time, due to the fact that they did not appreciate the need for good field ditches. On a few farms it has been necessary to deepen and enlarge ditches after allowing water to run in them long enough to soften the hard soil. This difficulty, and others connected with the watering of new lands by inexperienced unit holders, occupied almost half of the week.

The price of butterfat at the close of the week was 30 cents per pound.

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WEEKLY BULLETIN

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
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Vol. XX. June 17, 1922. No. 24

Western Irrigation Agriculture.

Huntley.

The maximum temperature for the two-week period ending June 10 was 87, minimum 34, and precipitation 1.72 inches.

Weather conditions were favorable for field work during most of this period, although frequent heavy showers occurred during the latter part of the second week. Hail occurred on a small part of the upper end of the project and slight damage resulted to crops. Continued cool, rainy weather has resulted in an unusual amount of black-root in sugar beets, with consequent loss or injury to stands of this crop. This condition occurs mainly on the lighter soils. Seeding of sugar beets on the project was completed during the week and thinning of earlier planted fields is well advanced. Alfalfa as a rule will not require irrigation for the first crop and but a small amount of water is being used.

The work of testing all cattle on the project for tuberculosis was completed. This work is being done by the Bureau of Animal Industry and has required about four months, during which time one man has been employed continuously. It is the intention to create an accredited, disease-free district of the entire project. Only about 8 or 10 affected animals were found in the district.

Station work during the two weeks consisted of seeding silage corn in fields L and O, and of constructing and repairing ditches for irrigation.

Irrigated Rotations.

Very little work was done on the rotations during the week ending June 3. Three varieties of soybeans, Mandarin, Manchu, and Manchuria, were planted in the miscellaneous plat L-IV-28.

Sugar beets and alfalfa are beginning to come up to an excellent stand in all of the plats in the rotations.

During the week ending June 10, no field work was done on the rotations. Up to Thursday evening, the week was spent in preparing a new waste ditch for field K.

The corn began to come through the ground the first of the week. The potatoes are not up yet but are well sprouted and beginning to show up in fine shape. Thursday evening a heavy rain stopped work for the remainder of the week.

Newlands.

For the four-week period ending June 10, Mr. Knight reports as follows:

" Owing to the coolness of the weather this spring most of the garden is rather backward in growth. It was not safe to transplant the tomato plants until May 29. On that date about forty plants of each of ten varieties were planted in a variety test. The varieties planted were Globe, Burbank, Perfection, Yellow Pear, Golden Queen, June Pink, Dwarf Champion, Earliana, Stone and Manyfold.

"The crops this year have suffered quite a little from pests. It has been necessary to reseed entire plats, due to pheasants and squirrels digging out the seed and the young plants. The corn planted on field E and sorghum on field H received the greatest damage.

"There has been three irrigations during this period. One on May 26 included all of fields Y and G. On May 31, D3, 6, 7, 8; E1, 2, 5, 6, 7, 8; and H8, 9 and 10, were irrigated. On June 6, all of B; C2, 3, 4, 5; D1, 2,4, 5; E2 and 3; all of F, and all of H, with the exception of 5, 6, 7, 8, 9 and 10, were irrigated.

"Some time has been devoted to extending the drain that lies west of Y between the fence and canal. It is hoped that this extension, and the recleaning of the old portion will drain a seeped area lying about 100 feet north of Y1.

"The experiment with pigs on pasture and in dry lot being fed barley or skim milk has been conducted long enough to show some results. The net profit has been greater where milk is fed, either in dry lot or pasture, but the present daily gain is largest for those pigs fed barley."

Scottsbluff.

The maximum temperature recorded during the week ending June 10 was 85, minimum 44. These are good growing temperatures and with the moisture in the ground all crops are making good growth.

A steady flow of irrigation water has been maintained during the week and all of the alfalfa fields and plats, and all pasture plats, have been irrigated and water has been turned on some of the grain fields. The alfalfa and sweet clover, both seeded alone and with a nurse crop, show good stands.

The beets in the irrigated rotations in field K have been thinned and there is a good stand. Thebeet stand all over the valley is reported as being good. On June 7 hail fell in some localities doing some damage to gardens and beets.

Grasshoppers are beginning to hatch out and in some places are said to be in larger quantities than every before. The farm bureau has shipped in large quantities of poison and are preparing to fight them. The Department of Entomology at Lincoln is also preparing to station a man at the farm who will carry on some experimental work with about 20 different formulas of poison.

Mr. A. C. Cooley visited the farm on the 10th.

Demonstrations on Reclamation Projects.

North Platte.

After arriving at the station and getting located the first thing undertaken during the week ending June 10 was to get in touch with the live stock work at the experiment farm. Considerable time was spent about the barn and dairy house cleaning up and getting the work systematized. An effort will be made to handle the small dairy herd in a practical way and thereby demonstrate what can be done by the farmers in the valley.

In order to get a clear conception of the extent of the dairy industry on the project a map will be made showing the location of each dairy herd. A blue print from the Reclamation Service showing the name and location of each farmer will be used for the map, and the data will be obtained from the live stock census taken each year by the Reclamation Service. A record will be made of hogs and sheep also. This work was commenced the latter part of the week.

A few farmers were visited. As soon as we get an idea of the most apparent needs of the farmers along the line of live stock, a definite outline will be made of the plan of procedure.

Shoshone.

During the week ending June 10, 23 farm visits were made and 35 requests for assistance were received.

Club work received considerable attention, especially the pig club at Frannie and the calf and pig clubs at Powell. A few members are still unprovided with animals. The Powell farm bureau was given assistance in securing information about the price of materials used for spraying potato vines. The County organization is pooling the orders of members for binding twine. How to lay out field ditches was demonstrated on two farms near Frannie.

The Powell creamery owned by the Yellowstone creamery of Billings, Mont., replaced Mr. Dover, the local manager, last week and published the information that there will be formed a corporation chartered under the laws of Wyoming. An attempt is being made to interest local capital in the hope of building up a more extensive business. As it has been for some time, by far the larger part of the cream produced on the project goes to other creameries which have stations at Powell and other towns.

Uncompahgre.

Monday of the week ending June 3 was spent in the office on general office work. Two visitors were received. The remainder of the week was spent mostly on work in connection with pig clubs. Most of the members now have their pigs and are keeping records of weights, feed and time.

Uncompahgre (continued).

The annual meeting of the Delta county livestock association was attended on invitation and a short talk was made on improvement of range stock and cooperation of range users in breeding and marketing. Fifty men were present.

The work of testing cows from which milk is sold in Montrose, for tuberculosis is nearly completed. Over 400 cows have been tested and 15 reactors found. The freight agent in Montrose has been interviewed in regard to shipping these reactors to market and a rate has been obtained which may induce owners of the cows to ship them. To get the cows disposed of is the particular thing desired. They are now being held and notall of them are as well isolated as they ought to be.

The first part of the week ending June 10 was spent with Mr. Cooley who arrived at Delta Monday noon, discussing policies and projects. Mr. Cooley left Wednesday noon. Most of the remainder of the week was spent in the office.

Considerable time has been given to pig club work, eleven visits to members having been made to advise regarding feed, weighing pigs, etc., and several office visitors received. The last of the pigs were distributed to club members during the week. There are 68 first year members on the project all of whom have pure bred pigs, either Duroc-Jersey or Poland China. These pigs have come from 17 different herds, including two at Grand Junction, one at the State Agricultural College, one at Pueblo, one at Buena Vista, two at Paonia, two at Austin, all off the project, besides small local herds. The average of these pigs with respect to type and quality is much better than of pigs used last year or the year before. Prices paid ranged from $8.75 to $25.00 including registration fees.

Milk River.

On Sunday, of the week ending June 10, in company with the Project Manager, a visit was made to a number of water users in the Strater vicinity and an irrigation plan suggested by one farmer was approved. A meeting at the Reclamation Service office was had with the manager of the potato growers association Monday by his request. A discussion of potato conditions, and possibilities on the project was held.

Wednesday afternoon a grasshopper control meeting called at the county court house was attended. Grasshoppers now in the nymph stage are numerous in areas north and south of Wagner, and north of Saco. Reports from various other areas also indicate that the grasshopper menace must be seriously considered here this year. A fund of money has been declared available by the commissioner in Phillips county and meetings have been called for Dodson, Malta, and Saco on June 15, 16 and 17, respectively, to complete arrangements for a campaign against the hoppers.

Milk River (continued).

During the week the agricultural agent of Blaine county was visited and plans discussed for supplying the services of this office to that end of the project.

On Saturday, in company with about 20 business men and farmers, a trip was made to the Campbell ranch, 4 miles northeast of Malta, where 60 acres of potatoes are being seeded. Such a large area on a single farm is unusual on the project, and results are to be watched carefully. A survey of the field for irrigation ditches is to be made by this office.

Due to an unusually wet spring, the use of irrigation water on the project has been minimized and the requests for the services of this office are largely in the line of general crop needs with very few calls for advice on irrigation itself.

Sun River.

Weather conditions have been very unsettled during the week ending June 10, with temperatures ranging between 38 and 82 degrees. A rain of .42 inch fell during the week and winds from the southwest and northwest prevailed.

Visits were made to 10 farms where assistance was given in the establishing of irrigation systems and in the planning of ways to better some farm conditions. Ten farmers called at the office seeking assistance with their ditches, and with other farm problems. Two demonstrations were given on the farms of Mr. Oxley and Mr. James in the manner of laying off farm ditches, and fifteen farmers attended one of the demonstrations and about thirty-five the other. One meeting was held in a schoolhouse on the Greensfields division. The demonstrations and the meetings were held in connection with the State irrigation expert and the county agent.

Crop conditions have been much improved by the recent rains and the farmers, for the most part, are feeling encouraged. Very little water has been turned out for irrigation, but the warm weather which seems to be approaching will give a rush for water. Up to the present time there seems to be very little danger from the grasshoppers and the pale western cutworm, pests, which in the past three years, have caused great losses to the farmers of the Sun River project.

IRRIGATION AND GROUND WATERS, HUNTLEY, MONTANA

The Huntley project is irrigated from the Yellowstone River by diversion at a point between Billings and Huntley. The quality of the water of the Yellowstone River in 1905 is shown in Table I, taken from Water Supply Paper 274. These analyses represent composites taken from July to November, 1905.

Table I.- Yellowstone River at Billings, Montana, 1905. Herman Stabler. Water Supply Paper 274, p. 135.

Date.	Total salts	Ca. & Mg.	$\frac{HCO_3}{2}$	Cl.	SO_4	Total acids
1905 July to November Composit	.0278	17.8	24.0	5.6	32	61.6

The irrigation waters were examined again in 1913 by Breazeale with results as shown in Table II, the first part of which gives the composition in parts per million and the second part gives the percentage of the various important constituents.

Table II.- Yellowstone River Irrigation Water, 1913. Weekly Bulletin Vol. V, p. 65. Analysis by Breazeale.

Date.	Total salts	Ca.	Mg.	HCO_3	Cl.	SO_4
1913						
May 26	124	14	Tr.	120	Tr.	19
June 9	142	14	Tr.	78	Tr.	27
July 19	155	37	Tr.	96	Tr.	34
August 15	160	37	11	96	Tr.	54
September 10	220	34	14	132	Tr.	83

Percentage Composition.

Date.	Total salts	Ca. & Mg.	$\frac{HCO_3}{2}$	Cl.	SO_4	Total acids
May 26	.0124	11.3	48.0	....	15.3	63.3
June 9	.0142	10.0	27.5	....	19.0	46.0
July 19	.0155	24.0	31.0	....	22.0	51.0
August 15	.0160	30.0	30.0	....	34.0	64.0
September 10	.0220	22.0	30.0	....	37.8	67.8

Irrigation and Ground Waters, Huntley, Montana.....continued.

The results of Tables I and II show that the irrigation waters of the Huntley project are of excellent quality, low in total salts and relatively high in calcium and magnesium, with a low proportion of chlorides as compared with sulphates.

Notwithstanding the fact that the irrigation water at Huntley is of excellent quality, there is a large area of unproductive land in the heart of the Huntley project in which the salt content is high. Numerous attempts have been made to bring this land into production, and, beginning in 1910, the Huntley Experiment Farm conducted some experiments on a tract near the townsite of Worden. This tract was selected as typical of the unproductive land of the project. The experimental work conducted on this tract is described in Department Bulletin No. 135, issued September 10, 1914. In connection with these experiments, samples of ground water, which occurred about three feet below the surface, were collected from four wells and analyzed by Mr. J. F. Breazeale. The results of these analyses are given in Table III, in the first part of which the various constituents are reported in parts per million and, in the second part, the percentage composition of the more important elements is shown.

Table III.- Huntley Ground Water, Worden Tract, 1913. Analysis by Breazeale, Bulletin 135, p. 5 -- parts per million.

	Total salts	Ca.	Mg.	CO_3	HCO_3	Cl.	SO_4
Mean of analysis of 4 wells	1.722	293	420	30	299	159	1.167

Percentage composition.

	Total salts	Ca. & Mg	$\frac{HCO_3}{2}$	Cl.	SO_4	Total acids
Mean, 4 wells	1.722	4.2	1.0	1.0	68	70

This table shows that the ground waters found under the Worden tract carried about one hundred times as much total salts as the irrigation water and that the balance of the constituents was essentially different, the percentage of lime and magnesium being about one-fourth as much in the irrigation waters, the carbonates and chlorides being less, and the sulphate much more.

Irrigation and Ground Waters, Huntley, Montana....continued

The present conditions as to irrigation and ground waters at Huntley are shown in Table IV for samples of water obtained recently by Mr. Hansen:

Table IV.- Laboratory test of Huntley waters (wells and drains), June 19, 1922.

Sample.	Total salts	Soap per 100 cc	Ca.	Mg.	HCO_3	Cl.	SO_4
Yellowstone River at Huntley	.0274	10.4	....	...	146	35	....
Canal at Experiment Farm	.0068	2.8	....	...	61	7	....
Well A, April 28	.3620	64.0	195	138	92	70	.2510
Well A, May 31	.3580	54.0	195	99	122	53	.2350
Well B, April 28	.5060	96.0	310	205	76	70	.4160
Well B, May 31	.5260	106.0	302	235	92	70	.3940
Well L, April 28	1.4700	133.0	342	332	122	142	1.0450
Well L, May 31	1.4100	96.0	333	187	213	133	1.0180
Well O, April 28	4.6500	320.0	307	1108	152	780	3.1900
Well O, May 31	4.3300	300.0	333	1010	275	640	3.1100
Well K, June 1	.7080	133.0	462	257	122	89	.5180
Riley Well	.1360	1.0	8	0	824	266	Tr.
Drain No. 7, May 18 Prenner	.1110	34.0	86	85	395	124	.0490
Drain No. 7, May 18 Outlet	.2220	49.0	86	141	457	35	.0960
Drain No. 7, April 22 Prenner	.1140	34.0	96	80	395	30	.0450
Drain No. 7, April 22 Outlet	.2150	45.0	106	117	427	35	.0960
Drain No. 13, April 22 McDermand	.3090	86.0	293	170	458	107	.1400
Drain No. 13, April 22 Outlet	.5110	117.0	269	310	458	80	.2950
Drain No. 13, May 18 McDermand	.3220	86.0	285	174	427	124	.1360
Drain No. 13, May 18 Outlet	.5110	108.0	246	295	440	70	.2900

Irrigation and Ground Waters, Huntley, Montana.....continued.

The samples reported from wells A, B, L, O, and K, refer to wells located in fields of corresponding designations on the experiment farm. The ground waters, as indicated by these wells, are five to ten feet below the surface. It is rather remarkable that the ground waters under fields L and O should contain such a high proportion of total salts. All of these fields on the experiment farm are highly productive, and fields L and O not less so than the others, yet, in the case of field O, for instance, the ground water within ten feet of the surface carries between four and five per cent of salt.

The percentage composition of these waters is shown in Table V.

Table V.- Percentage composition, Huntley waters (wells and drains) June 19, 1922.

Sample	Total salts	Ca.	Mg.	$\frac{HCO_3}{2}$	Cl.	SO_4	Total acids
Yellowstone River	.027	....	....	27	13	....	40
Canal, Experiment Farm ...	.007	....	....	44	10	....	54
Riley Well	.136	....	....	30	21	Tr.	51
Well A, April 22	.362	5.4	3.8	1.3	2.0	70	73
Well A, May 31	.358	5.4	2.8	1.7	1.5	66	69
Well B, April 28	.506	6.1	4.1	.8	1.4	82	84
Well B, May 31	.526	5.7	4.5	.9	1.3	75	77
Well K, June 1	.708	6.5	3.6	.9	1.3	73	75
Well L, April 28	1.470	2.3	2.3	.4	1.0	71	72
Well L, May 31	1.410	2.4	1.3	.8	.9	72	74
Well O, April 29	4.650	.7	2.4	.2	1.7	69	71
Well O, May 31	4.330	.8	2.3	.3	1.5	72	74
Drain No. 7, Prenner April 22	.1140	8.4	7.0	17.3	2.6	39	59
Drain No. 7, Outlet April 22	.2150	5.0	5.4	10.0	1.6	40	52
Drain No. 7, Prenner May 18	.1100	7.7	7.7	17.8	11.0	45	74
Drain No. 7, Outlet May 18	.2220	3.9	6.3	10.3	1.3	43	55
Drain No. 13, McDermand April 22	.3090	9.5	5.5	7.4	3.5	45	56
Drain No. 13, Outlet April 22	.5110	5.2	6.1	4.5	1.6	58	64
Drain No. 13, McDermand May 18	.3220	8.9	5.4	6.6	3.9	42	53
Drain No. 13, Outlet May 18	.5110	4.8	5.8	4.3	1.4	57	63

Irrigation and Ground Waters, Huntley, Montana ....continued.

It will be seen from this table that as in the case of the ground waters of the Wroden tract, mentioned above, there is a profound change in the balance of the important constituents as between the irrigation waters and the ground water. The percentage of calcium and magnesium is relatively low, as also the percentage of carbonates and chlorides, while the percentage of sulphates is high.

It would appear from these results that the soil blanket of the Huntley project is relatively rich in sulphate salts which are brought in solution by the irrigation water and accumulated in the under ground water sheet. The Riley well, which is located half a mile west of the experiment farm and is seventy-five feet deep, shows a salt complex much more closely related to the river water than the shallow wells and drains which tap the superficial water blanket.

It is clear from these results that this superficial water blanket must be watched carefully to avoid future complications, lying as it does within a few feet of the surface soil and carrying such a high proportion of salts, it can easily cause trouble unless adequate outlets to the river are provided.

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W E E K L Y B U L L E T I N

Of the Offices of

WESTERN IRRIGATION AGRICULTURE
and
DEMONSTRATIONS ON RECLAMATION PROJECTS

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Western Irrigation Agriculture

Belle Fourche.

Due to frequent rains very little work was done during the week ending June 17. The thinning of all the sugar beets was completed on Saturday. The balance of the time the men were employed in cleaning up the irrigated and dry forestry.

The total precipitation for June to date is 2.15 inches and from January 1 to June 17, 10.30 inches. No irrigation has been necessary to date.

A drain tile was put between plats 10 and 11, Series II, rotation 62. The seepage in these plats was not serious and it is hoped that this drain will do the work.

All crops to date are in excellent condition, particularly grain and alfalfa.

Huntley.

The maximum temperature for the week ending June 17 was 87, minimum 45, and precipitation 2.11 inches.

Heavy rains during the week stopped field work and delayed beet thinning and hay harvest. In neighboring sections some crop damage resulted from hail and rain in a severe storm that occurred June 15. On the Billings bench the irrigation canal was washed out in several places. Grasshoppers are occurring in large numbers in most parts of Yellowstone county, and County, State and Federal agencies are cooperating in control measures. Large quantities of poisoned bran are being distributed over most cropped sections.

Irrigated Rotations.

The first three days of the week were spent working on the new drain ditch and making irrigation ditches for field K. The roads and headlands of field K were also disced.

On June 14, a heavy rain storm stopped all field work for the remainder of the week.

San Antonio.

Field work of every nature was held back during the four weeks ending June 10. Rain fell eleven days out of the twenty-eight in measureable quantity. Heavy dew was deposited every night, which, coupled with the fact that almost every forenoon was cloudy, made drying of the fields very slow. While temperatures have not been unreasonably high, the unusual humidity has made the weather quite oppressive. No floods or damaging winds have occurred in the immediate San Antonio region.

The damp, hot weather has been favorable for the development of cotton boll-weevils and sorghum midge. Practically all cotton squares formed to date have been punctured and well grown larva have been found in fallen squares. Sterility of grain sorghum heads, due to the midge, varies from 10 to 75 per cent, the heaviest damage occurring the late planted milo fields or in late flowering varieties. Even the earliest planted, early flowering varieties have suffered some injury. Birds have caused some loss of seed from the experiment farm sorghum plantings notwithstanding the fact that two boys with shotguns have been kept moving through the plats when it was not raining, nor too muddy to get around.

The corn crop in the San Antonio region will likely be one of the best ever produced if the weather does not remain too wet at the time the grain should be gathered.

The harvesting and threshing of oats at the station was completed during the period. Other small grain varieties were harvested but wet weather has prevented threshing the wheat and barley, as well as flax varieties which were harvested June 7. These unthreshed grain varieties, and the flax, have suffered severely from wet weather. All small grain crops at the station and south of San Antonio were severely infected with both stem and leaf rust. In the region north and northwest of the city only slight damage was done by the rust.

Rhodes grass on A3 was fenced and two milk cows turned on to pasture May 21. It was necessary to remove them after six days, due to the fact they would not eat the grass and their milk flow was decreasing rapidly. Horses turned into this same field have eaten sparingly, after first cleaning up the Johnson grass and Bermuda grass growing as weeds in the Rhodes grass.

Several men have been kept busy chopping Johnson grass and weeds whenever possible between rains. Cotton plantings were thinned May 25 and 31, fair to excellent stands having been obtained.

Cowpeas planted in the corn row-spacing and interplanting test on field C6 May 15 have germinated to a good stand and are making excellent growth.

Messrs. Beckett and Ballard, of the office of Crop Acclimatization and Adaptation Investigations, arrived at the station May 25 and 27, respectively, to thin the cotton experiments being carried on in cooperation with their office. They left for Greenville, Texas, May 31.

Scottsbluff.

The maximum temperature recorded for the week ending June 17 was 90, minimum 49.

The work on the station has consisted principally in cultivating the beets and corn, irrigating and fencing in new pasture plats for the hogs. Field E, which has been devoted to dry land work until this year, and which was seeded to sweet clover with barley, has been surveyed and ditches built and water was turned on it June 17. The field shows an excellent stand of clover. Most of the pasture plats have been irrigated a second time and are making very satisfactory growth. The grass pastures, especially, are producing more growth than the stock can take care of.

Most of the project has had good rains during the past week. The precipitation on the 15th. at the station amounted to .52 inches. There have been showers and heavy rains on some part of the project almost every day, in some instances accompanied by hail, though usually not doing much damage. On the 15th. along the state line, just west of Henry, Nebraska, a tornado developed which resulted in considerable property damage but no loss of life. Five or six farm houses were completely destroyed.

Yuma.

The maximum temperature for the week ending June 17 was 112, minimum 52, and greatest daily range 49.

After a fairly cool period, the maximum daily temperature during the past week have been considerably higher than for the same period last year but about normal for the twelve-year period. The maximum of 112 occurred on June 17. The maximum temperature at this station for 1921 was 111 which was recorded on September 27.

An inspection of crop conditions on the project shows that the alfalfa and cotton crops are in fairly good shape. The same condition, however, exists this year which was encountered last season regarding the irrigation of the alfalfa crop. In the past years it has been the practice to make a seed crop on the majority of the lands with either no irrigation or with only one run of water after the last hay crop, but during the last two seasons it has been necessary to irrigate at least once and sometimes two or three times before the crop of seed matured. This is probably due in part to more drainage canals and also the condition of the river channel. During the last two years the channel has been scoured deeper and the river water level is lower in comparison with the irrigated lands.

There have been some reports of stripping of the blossoms and young pods. However, the present indications seem favorable for a slightly better than normal seed crop this year. A number of tests are being made on various parts of the project this year with cooperators in the use of superphosphates. It is desired to get some information regarding the difference in yield and tendency of flowers and pods to set on both fertilized and checked plats.

Yuma (continued).

The cotton plantings are making a very rapid growth and aside from the thin stands resulting from adverse weather conditions during planting, as stated in previous reports, the cotton outlook is promising.

Development continues on the Unit B of the Yuma Mesa Project. At the present time about 300 acres have been cleared, leveled, bordered, and planted to summer crops.

The first crest of the Colorado river flood passed on June 10 with an estimated discharge of 117,000 second feet. While a second rise was predicted for the last of June or the first of July the latest report advises that the river will continue to drop to normal.

Station work performed during the week consisted of irrigating, preparing seed bed and planting the remaining plats on the irrigated rotation series. This completes the planting of these lands. Cowpeas were seeded on the entire 68 plats to be plowed under later in the summer as a green manure crop. Other work performed was the harvesting of the 4th cutting of alfalfa, A1 to A8, inclusive, plowing under purple vetch, C19 to C28, inclusive; removing date palms, A nurseries; planting pedigreed date seed, A24; and general irrigating, cultivating and hoeing.

Preparations are being made to hold a project farm bureau picnic at the experiment farm on July 4. Representatives of the farm bureau, the Yuma chamber of commerce, and the U. S. Reclamation Service, are to take part in the speaking program.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Milk River.

By request of Mr. DeWit, a survey of his ranch was made Monday of the week ending June 17. Mr. DeWit's land is not irrigable from water in the project system. The soil, however, is a mellow loam capable of producing excellent crop yields if irrigation is provided. The pumping of water from the river, however, involved a lift of 25 feet. The land would have required considerable fresno work before irrigation would be possible, and after making estimates Mr. DeWit was advised against the plan for pumping water except with a small engine for garden purposes.

Areas infested with grasshoppers were inspected on occassions throughout the week with a view to developing useful data for the farmers' campaign against hoppers this season.

On Tuesday the Sklower ranch was surveyed for location of new turnout for 45 acres of grain land to be planted to Netted Gem potatoes for immature 1923 seed. New ditches and laterals were located. A conference with Phillips County agent on farming methods was held during the week.

Milk River (continued).

The forenoon of Wednesday was used in directing the preparation of land for experimental plats on the LaFond ranch. These plats are to be carefully prepared and seeded to four crops, sweet clover, alfalfa, Sudan grass, and, at the request of the manager of the Potato Growers'sAssociation, potatoes will occupy the fourth plat. The County Farm Bureau has provided seed for these experiments, and the Reclamation Service is to provide water. The work in caring for the plats is to be furnished by Mr. LaFond, under the direction of this office or the County Agent. A heavy rain during the week delayed completion of work as per arrangements.

A part of two days was spent in company with Assistant Engineer H. K. Smith in testing the accuracy of Venturi flume measuring devices. Grasshopper control meetings were attended at Dodson and Saco during the week and assistance given the County Agent in explaining control measures and demonstrating the proper methods for making poison mash.

Level work on the Elias ranch, west of Hinsdale, Montana, and inspection of fields on the Florin and Sheele ranches, in the Saco-Hinsdale vicinity, completed Saturday's work.

Newlands.

During the week ending June 10 considerable time was spent on the outbreak of blackhead in turkeys on the project. This disease caused heavy losses in the turkeys of this valley in 1917 but practically disappeared from the project until this summer. It seems to be quite widely distributed among the young turkeys of the valley now. A few turkey growers have had some losses; one party lost practically his entire flock of 500 turkeys in one weeks time. At the first signs of blackhead in the project a word of warning was given out to watch for the disease, and methods of treatment which have so far been used and recommended have been given general publicity.

There are three cources of treatment which have been used in this valley with success in some cases and with doubtful results in others. The remedies used for treatment of blackhead are sulfo-carbolate compound tablets containing the sulfo-carbolate of potassium, sodium, zinc and copper. This compound is used in the drinking water, about one tablet to the gallon, and mixed with a bran mash, about one 30-grain tablet being used to each ten pounds in weight of turkeys. This treatment is used as a preventative. For treating sick turkeys, where the individual must be dosed with a medicine dropper, a much stronger solution is used.

Powdered ipecac has been used and recommended. This drug is used at the rate of one tablespoonful to twenty small turkeys, the medicine being mixed with bran mash. This treatment is repeated every three or four days and is used to hold the disease in check.

Newlands (continued).

Sirup of ipecac is used in the following manner: for turkeys sick with blackhead, a few drops of the pure sirup of ipecac is given to each turkey the dose depending on the size of the turkey. To hold the disease in check, one tablespoonful of sirup of ipecac is mixed in sour milk at the rate of one tablespoonful to a quart of milk. The treatments for blackhead are in the experimental stage and the results of the treatment should be carefully studied and the doses varied to get the best results.

Herd testing work has occupied much of the time during the week ending June 17. It is hoped that 100 dairy herds of the valley will be tested by the end of the month. Special effort is being made this month to include most large dairy herds of the valley in the herd record work so that the reports will serve as a general survey of the dairy herds production of the valley. It is also hoped that sufficient interest will be aroused by this special activity in testing to enable a herd testing association to be organized.

During the past week one article was contributed to the local papers on the treatment of blackhead in turkeys. A circular letter was issued giving a report of the herd testing work done during the mont of May. For the past week there were received 49 calls for assistance and visits were made to eight farms.

Shoshone.

During the week ending June 17, sixteen farm visits were made and 32 requests for assistance received.

Mr. A. C. Cooley spent June 13 and 14 on the project in conference with the Agriculturist and in viewing various parts of the project with special attention to the soldier settlements near Frannie.

One day was given to visiting club members.

Dr. J. T. Dallas, veterinary inspector, began a retest, Saturday, of the dairy herds in which reactors were found about six months ago. Assistance was given him in locating herds and supplying information about the history of the cattle.

The potato growers' organization applying for articles of incorporation entered into negotiations with Albert Miller Co., Chicago, which wishes to act as a selling agent for all potatoes under control of the local organization. Two meetings were held, at one of which a representative of the Chicago Company was present to present and explain the contract proposed by the firm. Final action was not taken.

The price of butterfat was 28 cents on Saturday.

Sun River.

Weather conditions during the week ending June 17 were ideal for grain but rather poor for irrigation. There have been several little showers with intervals of fine growing weather. A precipitation of .33 inch of rain was recorded, and the farmers are feeling in very good spirits.

Very little irrigating is being done and where they are irrigating, it is either on the alfalfa or for the purpose of killing the cutworms which are damaging a few fields of grain. In some places it is apparent that fields are being irrigated too soon as there is a great deal of moisture in the ground and there are very few places that the crops are in any real need of water.

Besides figuring several small ditches and fills, systems were laid out on 400 acres of land for various types of irrigation. Twelve visits were made to farms and seven office calls were received. One article was written for the local paper on the subject of irrigation, and two trips were made to Great Fall in the Government car to meet Mr. Cooley and to take him back. Mr. Cooley made a thorough trip over the various divisions and pronounced the prospects the best that he had ever seen on the Sun River Project.

IRRIGATION AND GROUND WATERS, BELLE FOURCHE PROJECT, SOUTH DAKOTA.

The Belle Fourche Project is irrigated with water diverted from the Belle Fourche river at a point below the junction of the Belle Fourche and Redwater rivers. The quality of the water of these streams, above and below the junction, is reported in table I, on the basis of samples collected in 1905 and 1906.

Table I.- Belle Fourche Irrigation Water in 1905 and 1906. Mean of analysis of composite samples. From H. Stabler's Water Supply paper 274.

Percentage Composition.

Location of Sampling.	Total salts	Ca.& Mg.	$\frac{HCO_3}{2}$	Cl.	SO_4	Total acids
Belle Fourche River at Belle Fourche	.0844	19.4	10.5	2.3	50	62.8
Redwater River near Belle Fourche	.0759	25.6	13.3	2.3	50	65.6
Belle Fourche River at Diversion Dam	.0938	24.0	11.0	1.4	50	62.4

The outstanding characteristics of this water are the relatively high proportions of calcium and magnesium, low chloride, and high sulphate proportions. In total salts, this water compares favorably with the Colorado river at Yuma.

Samples of Belle Fourche irrigation water were collected in the latter part of the season of 1913 at the experiment farm near Newell, South Dakota. The results of analyses of these various samples, together with the percentage composition, are reported in Table II.

Irrigation and Ground Waters, Belle Fourche Project, South Dakota..continued.

Table II.- Belle Fourche Irrigation Waters in 1913. Analysed by Breazeale, parts per million. Weekly Bulletin, Vol. V, page 66.

Date of Sample.	Total salts	Ca.	Mg.	HCO_3	Cl.	SO_4
August 4	856	163	43	162	Tr.	538
September 15	860	159	43	162	Tr.	551
November 11	944	199	40	282	Tr.	575
December 5	934	180	46	162	Tr.	609

Percentage composition.

	Total salts	Ca.& Mg.	$\frac{HCO_3}{2}$	Cl.	SO_4	Total acids
August 4	856	24.1	9.5	....	62.8	72.3
September 15	860	23.5	9.4	....	64.0	73.4
November 11	944	25.3	14.9	....	61.0	75.9
December 5	934	24.2	8.7	....	65.1	73.8

It will be observed that both in total salts and in the proportions of the important constituents, this 1913 tests runs very close to that made seven years earlier.

The Belle Fourche Experiment Farm is located on both sides of one of the important townsite laterals of the project. With the progress of the years, there has been some seepage from this lateral, presumably percolating waters find their way through the crevices of the underlying clay or shale and coming close to the surface in the fields below the ditch. This seepage has necessitated the installation of several tile drains on the experiment farm and these drains discharge water rather rich in salt. The volume of seepage is such that the drains discharge throughout the year, though water is shut out of the lateral during the winter months. A comparison of the salt content, and of the character of the salts in the irrigation water and in the seepage water collected from these drains, is possible from the results shown in Table III.

Irrigation and Ground Waters, Belle Fourche Project, South Dakota..continued

Table III.- Laboratory analysis of Belle Fourche Waters, analysed by Scofield, June 21, 1922.

	% Total salts	Soap. per 100 cc	Parts per million				
			Ca.	Mg.	HCO_3	Cl.	SO_4
Irrigation water Townsite lateral	.098	50	132	119	122	18	.4500
Field A, Tile 1	1.000	275	386	888	487	443	.4500
Field A, Tile 2	.665	200	432	546	335	266	.3350
Field K, Drain	.540	195	408	543	549	160	.2700
Forestry Drain	1.270	335	395	1114	274	533	.6800

Percentage composition

	Total salts	Ca.& Mg.	HCO_3	Cl.	SO_4	Total acids
Irrigation water, Townsite lateral	.098	25.6	6.2	1.8	46	54
Field A, Tile 1	1.000	12.7	2.4	4.4	45	52
Field A, Tile 2	.665	14.5	2.5	4.0	50	56
Field K, Drain	.540	17.6	5.1	3.0	50	58
Forestry Drain	1.270	11.9	1.1	4.2	54	59

This table shows that the salt content of the seepage water is about ten times as great as that of the irrigation water. There is also a very marked difference in the proportion of the sum of the calcium and magnesium. Instead of 25 per cent of these elements, as is shown by the irrigation water, the seepage water shows only one-half to two-thirds as much. There is a corresponding reduction in the proportion of carbonates accompanied by a slight increase in the proportion of chlorides.

Irrigation and Ground Waters, Belle Fourche Project, South Dakota..cont'd

A consideration of the local conditions leads to the conclusion that the waters developed by these drains are largely derived from seepage rather than from concentration of the percolating waters applied in irrigation. In seeping through the interstices of the subsoil, this drainage water apparently undergoes some change as the result of leaching out the salts with which these subsoils are charged, some of the calcium and magnesium being absorbed and a corresponding quantity of sodium being released into the solution.

The outstanding feature of the situation at Belle Fourche is that although the soil is a very heavy clay, its physical condition is not permanently injured by the temporary accumulation of salty, seepage water. The plats in Field A, which were first swamped by this seepage, have been restored to full production as the result of the installation of the drains, followed by copious irrigation. This fortunate result appears to be due to the fact that the irrigation waters are relatively rich in calcium and magnesium.

The calcium-magnesium ratio of the irrigation waters in the analysis made by Breazeale in 1912, as well as in the analysis reported by Stabler (not reported separately in the table) shows about four parts of calcium to one part of magnesium. In the sample of irrigation water shown in Table III, the calcium-magnesium ratio is close to 1 : 1, while in the case of the drainage waters the magnesium materially exceeds the calcium. It is possible that the methods of analysis used with the samples reported in Table III may have given too high a proportion of magnesium but the error is probably not great since the quantity of calcium reported approaches the limit of the solubility of calcium.

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Western Irrigation Agriculture.

Demonstrations on Reclamation Projects.

Minidoka.

Newlands.

Shoshone.

Uncompahgre.

Miscellaneous.